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Presidential Address

ON

AN INVESTIGATION OF THE CAUSES WHICH DETERMINE THE LIE OF THE FŒTUS IN UTERO.

Delivered before the Obstetrical and Gynæcological Section of the Royal Society of Medicine on July 1st, 1915,

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PRESIDENT OF THE SECTION.

GENTLEMEN,—The problem of the causes determining the position of the fœtus in utero is one which has engaged the attention of investigators from early times, and has throughout led to much speculation on bases supposed to be correct, but which, being often wrong, lead to wrong conclusions.

AN ANCIENT ERROR.

One of the most obvious and ancient of these errors which appears not to have yet quite died out is that the fœtus lies head upwards until the seventh month and then takes a dive and lies head downwards during the remainder of its stay in the uterus. It was not until Onymos, Smellie, and William Hunter demonstrated the true facts of this fundamental matter that any real advance began to be made in its explanation.

Hunter says: "All the observations that I have been able to make in dissections and in the practice of midwifery would persuade me that the child's head is naturally downwards through all the later months of utero-gestation, and that neither reason nor instinct teaches it at a particular time any trick of a tumbler or rope-dancer."

Thomas Raynalde in "The Byrthe of Mankynde," 1545, described the position of the fœtus in utero (with an illustration plate) in the following terms in the last page of the first booke: "In the last figure the chylde being a man chylde lyeth after the very manner as it is situat in the mothers womb, with the hed towardes the ryght angle or corner of the matrice, and the legges acrosse." He, like some of us, has no respect whatever for the opinion of those who differ from him. He says: "Albeit there be that do describe the lyeing of the childe after another sort, but to be short they are lyars." He particularly says a man chylde and that it lies in the right side of the womb, for since Hippocrates taught it, it was believed that males lie in the right and females in the left half, and that a child in the middle must be a hermaphrodite. This book, which I exhibit, is, as is well known, the first book printed in England with copper-plate engravings.

Mauriceau, 1682, writes: "The fœtus lies head upwards until the seventh or eight month, then turns head downwards by a natural disposition of the weight of the upper parts of the body." Hugh Chamberlen, in his translation of this, adds a footnote that "this movement is due rather to a natural propensity than to the weight of the head."

THE GRAVITY THEORY.

In 1743 Josephus Onymos, in an inaugural dissertation published by Haller in the fifth volume of his "Disputationum Anatomicarum Selectarum," p. 325, described with some accuracy the real position of the fœtus in utero and suggests, I believe for the first time, the gravity theory. Section V. translated from the somewhat ambiguous Latin reads thus:—

> There exist, therefore, two properties, which reside in the structure and conformation of the parts—namely, specific weight and volume. From these properties results the proper position of the fœtus, but these parts can be nothing else than the head, wherein, no one will doubt, these properties dwell; for it is evident that the head is the part which possesses the greatest volume, as mere inspection teaches us. So, too, as anatomical examination of its structure shows, the head has the greatest specific weight, inasmuch as it is denser than the other parts, but where the density is greater there the weight is greater, for it is known from physics that weights are proportionate to densities. We must now, therefore, enter on the further inquiry how the position (of the fœtus) results from these properties, and what kind of position. We know from physics, again, that if a body whose density and weight are not uniform throughout is placed in a sufficiently large vessel of fluid, the force wherewith its acts on the fluid is not uniform, so that that part of the body which is heavier than the other descends towards the centre of gravity with the greater force and speed. Now the head is the part which possesses the greatest volume and weight as compared with other parts, and the uterus is a sufficiently large receptacle, full of liquor amnii. Let the internal orifice of the uterus be the centre of gravity, and let the embryo in the uterus be regarded as the body which we have mentioned immersed in fluid; we shall see that the momentum of descent of its heavier part is in direct proportion to its weight, but the weight of its upper part—that is, of the head—prevails over that of its lower part, to which must be added its volume; so the head will necessarily move towards the centre of gravity with greater force and speed than the other end. Therefore the head of the fœtus will always occupy the lower part of the uterus.

His physics are not quite in accordance with our present knowledge, and he uses the term "centre of gravity" in a way which I do not understand, but it is clear that the idea underlying his statement is in the main correct.

It is not necessary, however, to spend our time in recalling the history of the various theories which have been advanced; they can be studied in the essay of Cohnstein, "Die Aetologie der normalen Kindeslage." Onymos in 1743 apparently originated the gravity theory, and was supported in the eighteenth century by Levret, Fielding, Ould, and Roederer. Gravitation, which, as we shall see, is the predominating factor, has been discussed since that time, and has been accepted and rejected by many authors without an accurate knowledge of the factors which would either prove or disprove its importance. Matthews Duncan strongly supported it, Sir J. Y. Simpson as resolutely opposed it, and it has been a great pleasure to me while investigating the subject to find experimentally that many of the statements made by Duncan, based on theory and on crude experiment, were correct. I therefore determined to investigate the whole question *de novo*, and I now place the results before you.

POSITION OF FŒTAL HEAD AT DIFFERENT PERIODS.

An important point necessary to be established was the frequency of the presence of the cephalic end of the fœtus at the lower or upper pole of the uterus during the later middle months of pregnancy. The almost invariable presence of the cephalic end at the end of pregnancy in the lower pole is universally accepted and needs no independent investigation. The position, however, in the middle months was one less certainly accepted, and I have made use of every opportunity afforded

me to ascertain this point, and I am led to agree with Scanzoni, Veit, Dubois, and others that in the middle months the proportion of head-lowest positions of live fœtuses steadily increases from 50 per cent. before the sixth month to the almost invariable head-lowest position as the mobility of the fœtus in utero decreases in the later middle months.

In the early months the embryo is small in proportion to its container and is freely movable within it. As pregnancy advances its mobility becomes more and more restricted as the size of the fœtus more closely approximates the size of its container, and we may conclude that when this correspondence of size is being reached, and the mobility of the fœtus is greatly restricted, it is unlikely that any such great change of position as would be necessitated by a revolution of the fœtus could be accomplished without some extraneous agent, such as is exemplified by external version. And this difficulty of movement, as we shall see later, is greatest when the "lie" is longitudinal, and especially so if the head is lowest, and even more if the head and the lower pole of the uterus lie comfortably in a pelvic brim of corresponding size.

We are fully justified in concluding that if a fœtus in the last three months lies head downwards in the lower pole of the uterus and in the pelvic brim, it is, under ordinary normal conditions, stable in this position, and is very unlikely to alter, except as a result of rotation on its longitudinal axis, and that only to a minor extent. The most important conditions which interfere with its stability are those which increase its mobility, such as hydramnion; and those which interfere with its presenting part lying comfortably in the lower pole of the uterus and in the pelvic brim, such as the presence of placenta prævia, fibroids in the lower uterine wall, solid or cystic tumours in the pelvis, some deformities of the pelvis, some deformities of the fœtal head such as hydrocephalus; great relaxation of the abdominal wall, allowing great mobility of the uterus, may also act in a similar way. If the fœtal head does not lie in a brim adapted to its size it will be unstable and easily moved, and so-called transverse or oblique presentations are therefore commonly met with under these circumstances.

No other part of a fœtus is so adapted to the normal pelvis as the head; the breech when the presentation is "complete" rarely enters the brim until labour forces it in, though the "incomplete" breech may engage as firmly and with almost the stability of the head.

PHYSICAL PROPERTIES OF FŒTUS AND LIQUOR AMNII.

For the complete consideration of this problem it is necessary to ascertain certain physical properties of the fœtus at rest and of the liquor amnii, and any forces which disturb the fœtus at rest.

A. *The fœtus.*—The fœtus, which is a body of varying and not uniform density, is immersed in fluid in a closed cavity of more or less corresponding shape and is for a time freely movable in it; later, as its size more nearly approximates that of the uterine cavity, its mobility is more and more restricted. My investigations have been directed to the following points: 1. The specific gravity of the fœtus at different periods of development and of its most important parts. 2. The specific gravity of hydrocephalic and anencephalic fœtuses, and especially of the head in these cases. 3. The centre of gravity of the fœtus.

B. *The liquor amnii.*—This is a fluid of uniform density in each specimen. 4. We must consider the varying specific gravity of different specimens. 5. The relative specific gravity of the fœtus and the liquor amnii. 6. The metacentre, or centre of buoyancy. This is the centre of gravity of the fluid displaced by the fœtus—i.e., the centre of gravity of a substance of uniform density exactly corresponding in shape and size with the fœtus. This is the centre through which the resistance to the descent of the fœtus, whatever its position in utero, must act in a vertical direction. 7. The relative positions of the centre of gravity of the fœtus and the metacentre.

C. *Movements disturbing the fœtus at rest.*—8. Fœtal movements. 9. Uterine movements—i.e., contractions. 10. Maternal movements.

SPECIFIC GRAVITY OF THE FŒTUS.

In order to illustrate the importance of the specific gravity of the fœtus in relation to the question, let me refer to the chief points in the discussion between Matthews Duncan and Sir J. Y. Simpson.

Sir James Simpson had tried to show that the *chief* factor in determining the position of the fœtus was the obovoid shape of the cavity of the uterus acquired during the development of pregnancy, and that the fœtus adapted itself to this shape so as to lie in the most comfortable position. Dr. Duncan's view was that the shape of the uterine cavity was principally determined by the shape of its contents, and that gravitation was the essential factor in determining the position of the fœtus.

Simpson said:

"Most authorities have supposed that the position of the fœtus in utero with the head undermost was owing to the greater specific gravity of the head," and that if this were so "this position ought to be found with more frequency and certainty when the gravitation of the head from any cause was rendered proportionally greater than natural; with less frequency and certainty when the gravitation of the head was rendered proportionally less than natural. The very contrary of this (he said) is, however, the truth. In cases of intra-uterine hydrocephalus, the child's head is larger and heavier than usual." ..... "But this condition of the head, this increased preponderance and gravitation of it, does not render head presentations in these cases more common than usual, but the very reverse. Again, anencephalic fœtuses with the whole brain and arch of the cranium wanting are still often found presenting naturally."

Dr. Duncan replied thus:

"Now this argument when justly applied is made to tell most decidedly in favour of the gravitation theory. The altered circumstances of a hydrocephalic fœtus have been altogether misapprehended. The hydrocephalic head, although truly much larger and heavier in air, is *probably* lighter and more buoyant in water. In this way it is demonstrated that the four times greater frequency of abnormal presentations in cases of hydrocephalus proves rather than disproves the influence of gravitation in deciding the position of the fœtus."

With regard to anencephalous fœtuses he hints at the probable error in the argument, but says: "We can base no reasonings upon the presentations of anencephalous fœtuses whose statical conditions we do not know."

It will be seen from these very short abstracts what an important bearing on the question the specific gravity of the fœtus as a whole and of its chief parts has had in the discussion of this question, and how important it is that this should be determined. Duncan's theory in both cases was correct, as these experiments prove; the anencephalic head has a very high, the well-marked hydrocephalic head a very low, specific gravity.

TABLE I.—*The Specific Gravity of the Fœtus at Different Periods of Development.*

Reference No.	Weight.	Presentation.	Sex.	Notes.	Whole body.	Head.	Thoracic and abdominal portion.	Thoracic portion.	Abdominal portion.
				2nd Month.					
1	174 gr.	—	—	—	1·032	1·029	1·035	—	—
				3rd Month.					
2	2½ oz.	—	F	—	1 036	1·033	1·038	—	—
				4th Month.					
3	2¾ oz.	—	M	—	1·037	1·030	1·040	—	—
4	4¼ oz.	—	F	—	1·049	1·046	1·052	—	—
5	4½ oz.	—	M	—	1·040	1·036	1·043	—	—
6	4 oz.	—	M	R. arm 1·037. R. leg 1·036.	1·035	1·031	1·037	1·038	1·036
				5th Month.					
7	11 oz.	Breech.	M	—	1·042	1·037	1·045	—	—
8	9½ oz.	Unknown	F	—	1 043	1·036	1·046	1·045	1·048
				6th Month.					
9	2 lb. 2 oz.	Head.	F	Twins.	1·050	1·050	1 050	1·050	1·049
10	1 lb. 12½ oz	Breech.	F	Twins.	1·049	1·048	1·050	1·049	1·051
11	1 lb. 9¼ oz	,,	M	Hydramnion; umbilical cord 1·020.	1·046	1·044	1·049	—	—
12	1 lb. 3 oz.	,,	M	—	1·051	1·047	1·056	—	—
13	1¾ lb.	,,	F	Maceration begun.	1·050	1·048	1·053	—	—
14	2 lb. 5¾ oz.	H. & L.S.	—	—	1·050	1·049	1 055	—	—
				7th Month.					
15	2¾ lb.	Head.	F	—	1·050	1·047	1·052	1·055	1·049
16	3¼ lb.	Breech.	F	—	1·054	1·051	1·056	—	—
17	1¾ lb.	,,	F	—	1·053	1·045	1·057	—	—
18	3¾ lb.	,,	M	R. arm 1·045. R. leg 1·049.	1·052	1·053	1·051	1·053	1·049
19	3¼ lb.	Unknown	F	—	1·050	1·044	1·054	—	—
20	2¼ lb.	,,	M	—	1·044	1·044	1·045	—	—
21	2½ lb.	,,	F	One of triplets.	1·051	1·047	1·053	1·054	1·051
22	3¼ lb.	Uncertain.	M	Maceration begun.	1·058	1·060	1·057	—	—
23	2½ lb.	Head.	F	Anencephalus	1·050	1·061	1·049	—	—
				8th Month.					
24	4½ lb.	Head.	F	—	1·051	1·046	1·053	1·054	1·052
25	3½ lb.	,,	M	Maceration begun.	1·052	1·051	1·053	—	—
				9th Month.					
26	8½ lb.	Vertex.	M	—	1·052	1·055	1·051	—	—
27	9¾ lb.	,,	M	—	1·050	1·056	1·048	—	—
28	5¼ lb.	,,	M	—	1·055	1·056	1 054	—	—
29	5¾ lb.	,,	F	Twins.	1·056	1·065	1·053	—	—
30	4¼ lb.	,,	F	Twins.	1·055	1·060	1·054	—	—
31	6¾ lb.	,,	F	—	1·055	1·059	1·053	—	—
32	7¼ lb.	,,	F	—	1 054	1·058	1·053	—	—
33	5¾ lb.	,,	M	—	1·059	1·059	1·059	—	—
34	7½ lb.	,,	—	L. arm 1·055. L. leg 1·051.	1·057	1·065	1·053	1·055	1·051
35	6 lb.	,,	F	—	1·052	1·054	1·048	1·048	1 047
36	5¾ lb.	,,	F	—	1·050	1 058	1·048	1·051	1·044
37	7 lb.	,,	M	R. arm 1·060. R. leg 1·058.	1·060	1·066	1·058	1·058	1·056
38	4¾ lb.	Breech.	F	—	1·049	1·046	1·050	—	—
39	8¼ lb.	,,	M	—	1·059	1·063	1·054	1·056	1·051
40	5½ lb.	R. shoulder.	M	—	1·059	1·059	1·059	—	—
41	5¼ lb.	Shoulder.	M	—	1·049	1·054	1·045	1·047	1·044
42	6¾ lb.	Vertex.	M	Maceration advanced.	1·049	1·050	1·048	—	—
43	5 lb.	? Vertex.	M	—	1·046	1·048	1·045	—	—
44	4¾ lb.	Vertex.	—	Maceration begun.	1·055	1·060	1·054	—	—
				Hydrocephalus.					
45	8¾ lb.	Vertex.	M	—	1·042	1·038	1·044	—	—
46	7¼ lb.	,,	F	—	1·049	1·037	1·059	1·061	1·057

H. & L. S. = Head and left shoulder.

Results of Investigation.

I have investigated the specific gravity of 60 fœtuses, which include examples of each month from the second onwards. Five of these showed early or advanced maceration. All the rest were fresh fœtuses without any evidence of having died before labour began. A few, however, of these had to be rejected on account of air having entered the lungs in small quantity or the stomach and intestines in large quantity, as the result of attempts at artificial respiration. This condition was usually suspected by finding a low specific gravity and proved afterwards by examination of the viscera. The omission of this precaution renders the experiments and any conclusion drawn from them valueless. An interesting paper recently published by Dr. Charles G. Barnum, of Groton, Connecticut, loses some of its value on this account.

The specific gravity of the fœtus and its different parts was calculated from the difference of weight in air and in water, great care being taken to avoid error from the admission of air into the fœtus and adhesion of air bubbles to the surface when immersed in water. The difficulty of avoiding error was greater when the fœtus was divided for the purpose of ascertaining the specific gravity of its constituent parts. The difference between the head and the rest of the body was ascertained in every case.

A considerable number of fœtuses were divided into three portions: (1) the head; (2) the thorax and arms, including the liver and spleen, which in a fœtus that has not breathed are entirely covered by the lower part of the thorax; and (3) the abdomen and legs. Table I. gives the details of 46 specimens, selected for their accuracy. They show a steady rise in specific gravity as the fœtus develops, and this appears to be largely due to the progress in development of bone and the amount of bone in the different parts. The smallest embryo (No. 1) weighed 174·1 gr. and was expelled at the end of the seventh week after the last menstrual period. Ossification had commenced in the ribs, long bones, lower maxilla, and clavicle; its specific gravity was 1·032. The largest (No. 27) weighed 9¾ lb., and its specific gravity was 1·050.

The table is arranged according to the month of pregnancy so far as this could be ascertained, chiefly from the menstrual history, in a few cases by the development of the body. I have included in the table the sex and the presentation of the fœtus where this was certainly known. The small fœtuses of the first four months are so movable that it is often not possible to be sure how they lie and present in the lower uterine segment. In the two of the fifth month one presented by the breech, the other was not known. In the sixth month 1 presented by the head, 4 by the breech, and 1 by the head and left shoulder.

Some Points Demonstrated by the Inquiry.

I have omitted from the table a considerable part of the details which I have accumulated as being now unnecessary and only of value to any who are interested in studying the rival theories of past writers. When I began this investigation I was under the impression that the determination of the specific gravity of the fœtus and its parts would give us the answer to the problem. The few points I will draw your attention to will demonstrate that this is not the case. These are: That in no instance does the specific gravity of the head

exceed that of the remainder of the body before the end of the sixth month. It is generally lower, and in only one case of the sixth month was it equal to that of the body. In 3 only out of 9 normal fœtuses of the seventh month was the specific gravity of the head higher than that of the body. In 2 of the eighth month (the only ones I have examined of this month) the specific gravity of the head was lower than that of the rest of the body. In 16 full-term fœtuses the specific gravity of the head was considerably higher in 13 than the body, equal in 2, and lower in 1. It will also be noted that up to the end of the sixth month of pregnancy the difference of specific gravity of the three great divisions of the fœtus—namely, its head, thorax with the arm, abdomen with the legs—is very slight. During the seventh and eighth months the thoracic portion is the highest, and it is only in the last month that the head is constantly higher than the rest of the body. It is also clearly seen that the relative specific gravity of the head to the body has no necessary relation to the lie of the fœtus, whether when quite fresh or in various degrees of maceration in utero, and contrary to theory maceration hardly affects the specific gravity of the fœtus.

Two other matters of interest are demonstrated in the table, matters which were of much importance in the rival contentions of Matthews Duncan and Sir J. Y. Simpson. The examination of hydrocephalic and anencephalic fœtuses shows that the theoretical opinion and arguments of Matthews Duncan were correct. The specific gravity of the 2 hydrocephalic fœtal heads is very low, as low as in normal fœtuses of the fifth month—namely, 1·038, 1·037 (Nos. 45 and 46). The head of the anencephalous fœtus of the seventh month was very high for the period of development—namely, 1·061; it consists chiefly of bone. The specific gravity of full-term normal male fœtuses varies between 1·049 to 1·060, of female between 1·049 to 1·056; the average in nine males 1·055, in seven females 1·053. The specific gravity of the umbilical cord is 1·020, considerably higher than that of the liquor amnii, and it therefore sinks when lying free in it.

THE SPECIFIC GRAVITY OF THE LIQUOR AMNII.

The present series comprises 112 specimens, of which 8 were specially examined immediately after evacuation, as well as when cold, to show the difference in specific gravity under these conditions; the remainder were taken when cold, and were recorded with the age of the mother, the number and duration of the pregnancy, and the sex, length, and weight of the infant; none of which conditions, however, appear to have any influence on the matter. Table II. shows that the limits of variation are less than those usually given, the average being 1·007, which agrees with that usually accepted.

TABLE II.—*Specific Gravity of Liquor Amnii in 112 Cases.*

	No. of cases.		No. of cases
Specific gravity 1·002 ...	3	Specific gravity 1·009 ...	1
,, ,, 1·003 ...	1	,, ,, 1·010 ...	19
,, ,, 1·004 ...	19	,, ,, 1·012 ...	4
,, ,, 1·005 ...	2	,, ,, 1·014 ...	2
,, ,, 1·006 ...	44	,, ,, 1·016 ...	1
,, ,, 1·008 ...	16		

Spiegelberg gives the variations as between 1·002 and 1·028, and Whitridge Williams, like many recent writers, gives the same figures. The limits in this series are 1·002 to 1·016, but it will be seen that in the three instances in which the specific gravity exceeded 1·012 there was evidence of some abnormal condition; in two it was of a dark-green colour and probably contained meconium; and in the other case the fœtus was macerated, though there are, however, two others containing meconium and one from a macerated fœtus which have a specific gravity nearer the average. This series does not contain any specimens from early pregnancies, but instances recorded by other observers make it probable that there is little variation at the different periods of pregnancy. The large majority in this series are of the ninth month, a few only of the seventh and eighth month.

The complete tables, which I do not exhibit, appear to show that the specific gravity of the liquor amnii is independent of the sex, weight, and length of the fœtus, and of the age of the mother and the number of her pregnancies.

Table III. shows the low specific gravity of the liquor amnii at the body temperature.

TABLE III.—*Specific Gravity of Liquor Amnii at Full Term.*

	At body temperature.	When cold.		At body temperature.	When cold.
(1) ...	1·000	1·002	(5) ...	1·002	1·006
(2) ...	1·002	1·004	(6) ...	1·002	1·006
(3) ...	1·002	1·006	(7) ...	1·002	1·006
(4) ...	1·002	1·006	(8) ...	1·006	1·010

A comparison of the specific gravities of fœtuses and liquor amnii shows an increasing preponderance of that of the fœtus throughout pregnancy, and the fœtus must therefore always sink to the most dependant part of the uterus.

FŒTAL MOVEMENTS.

There are two kinds, passive and active. The passive movements of the fœtus are due to its weight and to changes of posture of the mother, such as from standing to sitting or when lying on the back or changing from one side to the other, in which the greater specific weight of the fœtus causes it to sink to the most dependant part of the uterus. While the fœtus is small, or when there is a great quantity of liquor amnii, the effect of such movements, as of all others affecting the fœtus, may be of importance, but when the mobility of the fœtus is restrained the effect must be limited more and more, and can at most effect a change laterally as from a first to a second position.

In considering the question of the effects of factors which disturb the fœtus at rest, it is interesting to realise the very small effective weight of the fœtus immersed in liquor amnii of the average specific gravity. This I have ascertained and find that 7 oz. represent the effective weight of a full-term fœtus of 7 to 8 lb. weight in liquor amnii of the average specific gravity as it sinks to, and rests on, the most dependant part of its containing cavity, of which weight about one-third is contributed by the head and two-thirds by the body of the fœtus. The weight of the body may be taken as accurately representing the gentle pressure which maintains the flexion of the fœtal head on the body when the head is lowest, and the weight of the head as representing the still more gentle pressure of flexion where the breech is lowest. This gentle pressure is not augmented until the contractions of the uterus in labour cause a greatly increased pressure on the fœtus and on the passage from the uterus which has to be dilated for the extrusion of the fœtus.

Active Movements of the Fœtus.

These are the movements of the limbs, which are often of a sudden and jerky nature; the gentle sliding movements can hardly be of importance as causes of disturbance of the position of the fœtus. Movements of the arms are of less importance than those of the more powerful legs, which being attached to one pole of the fœtus may under certain circumstances cause movement of the whole fœtal body.

When the fœtus kicks, its foot or knee strikes the uterus, which is generally flaccid and yields to the pressure, and there will be little movements of the fœtal body. External to the uterus the abdominal walls and contents are, for the most part, elastic, and as we often see yield to the pressure of the limbs, but at the lower pole the pelvic brim offers a firm resistance, and movement of the fœtus would be probable if it is freely movable and if the breech presents and the fœtus can kick its mother's pelvis.

If, however, as is usually the case, the breech lies in the upper pole and the fœtus is only able to kick the elastic structure between the fundus and the diaphragm, and if in addition the fœtus is not freely movable, the effect of the fœtal movements on its body would be slight and of little importance; and I may repeat the statement that if a fœtus of a size nearly corresponding to that of its container lies with the head in the lower pole of the uterus, and both lie comfortably in the pelvic brim, it is in a condition of stability from which it is not easily disturbed. On the other hand, if a fœtus, owing to its free mobility or from any of the causes previously mentioned, lies in an oblique or other position above the brim, its position is not stable and may vary as the result of its own movements, or of movements communicated to it by the varying positions of the mother.

Movement due to Uterine Contraction.

Contractions of the pregnant uterus are so commonly observed that if they produced any marked change in the position of the fœtus their effect would be well known. I have never seen any such effect, nor do I know of any evidence in favour of it. When the fœtus and uterus approximate in size their long axes correspond in direction, and it is probable that in the event of their not doing so the contractions of the container would tend to redress any considerable diversity, but would have little or no effect in determining which end of the long axis of the fœtus occupies the upper or lower pole of the uterus.

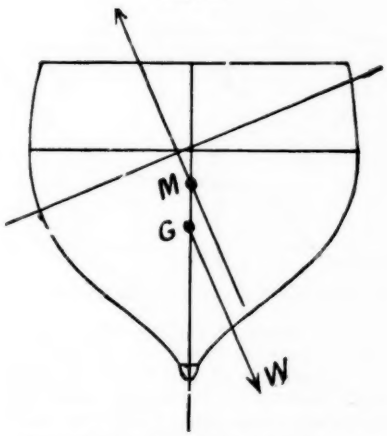
We are therefore probably justified in concluding that the cumulative effects of the natural forces which disturb the fœtus at rest can only act as assistants in adapting the long axis of the fœtus to its container, and while it is freely movable to enable the only dominant and always present force—namely, gravity—to act efficiently until the position has become stable. We know of no natural factor capable of disturbing it when once this is attained, and if such a change of position is desired we have to employ external version, and even then we are not always able to accomplish it.

THE CENTRE OF GRAVITY OF THE FŒTUS AND THE METACENTRE.

This aspect of the problem was suggested to me recently when making inquiries about the methods used by designers for ascertaining the buoyancy and stability of boats and vessels of all kinds on or in water, and with the invaluable assistance of Dr. Womack, lecturer on physics at St. Bartholomew's Hospital, I have been able to carry out some experiments to determine these points.

While the principle involved is a simple one, the determination of the centre of gravity of the fœtus with sufficient accuracy is not difficult, but the determination of the metacentre involves technical difficulties which can only be overcome by experience, and with the aid of an expert in making casts and in modelling. It is this part of the question which has necessitated so much delay on my part in bringing this problem before you. The centre of gravity I worked at years ago and the results are interesting as far as they go, but the problem is to be determined by ascertaining the relative positions of the centre and metacentre or centre of buoyancy.

FIG. 1.



Illustrating the forces at work in the buoyancy of a boat.

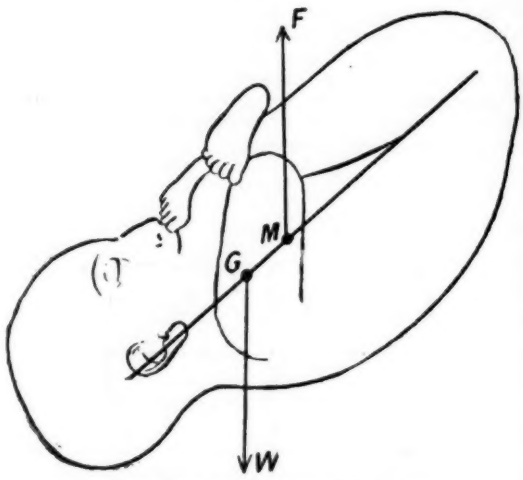
The stability or buoyancy of a boat or any vessel intended to float (see Fig. 1) is determined first by ascertaining the centre of gravity of the boat (G)—that is the point through which in any position of the boat its weight (W) would tend to sink it; secondly, to find the metacentre or centre of buoyancy (M)—that is, the point through which the vertical upthrust (F) of the supporting fluid must act in any position of the boat. This point corresponds with the centre of gravity of the fluid displaced by the boat, and is therefore identical with the centre of gravity of any body of uniform density and of precisely the same shape and size as the portion of the boat which is submerged.

These two forces, the weight and resistance, are necessarily equal, and if the centres through which they act coincide, the floating body, unless disturbed by some other agency, would remain at rest in any position in which it is placed. If the centres do not coincide, but are at some distance from each other, and there is no extraneous force to complicate matters, the couple thus formed would tend to rotate the boat until it comes to a position of rest with the centre of gravity vertically below the metacentre, causing it to return to its upright position, or if the position of the centres is reversed causing it to capsize.

If this principle is applied to the fœtus immersed in fluid (Fig. 2), owing to its weight being greater than an equal quantity of liquor amnii it must be brought to rest by the resistance of the uterine wall plus the upward thrust of the

surrounding liquor amnii, the weight (W) of the fœtus acting through its centre of gravity (G), the resistance (F) through the centre of gravity of the displaced fluid—i.e., the metacentre (M); it must follow that if the two centres do not coincide the fœtus can only be brought to rest when its centre of gravity lies vertically below the centre of buoyancy.

FIG. 2.



The application of the principle to the fœtus.

The centres cannot coincide; the liquor amnii is of uniform density, the fœtus is not, so that if the centre of gravity of the fœtus is nearer the head end of the axis of the fœtus than the centre of buoyancy, the head end, if free to move, must tend to sink to the most dependant part. This tendency will be aided by all movements which disturb the fœtus at rest to which I have referred.

Centre of Gravity of the Fœtus.

The instrument used in my earlier experiments for determining the position of the centre of gravity was made for me by the Cambridge Scientific Instrument Company. It consisted of a rectangular table of hard wood perfectly balanced on knife edges; a line is marked on the table uniting the knife edges on which it is supported. This table, though made for large fœtuses, was found to be reliable for embryos of the early months. A fœtus tied up by thread in the attitude usual in utero is laid on the table and adjusted until perfectly balanced; the centre of gravity lies in the vertical plane of the fœtus, resting on the line joining the knife edges. This plane is marked on the fœtus. In order to determine the position of the centre of gravity in this plane two other intersecting planes are ascertained by shifting the fœtus and then marking them in the same way. Long steel needles are then passed through the fœtus in these planes and the point of intersection taken as representing the centre of gravity. This point was, without exception, close to the upper surface of the diaphragm, at the spot where the inferior vena cava enters the right auricle.

Some details are given of 14 fœtuses of the fourth and succeeding months, and show the distance of the centre from the vertex and the breech, and in some instances the point of intersection of the needles (see Table IV.).

TABLE IV.—*Centre of Gravity in 14 Fœtuses from the Fourth Month Onwards.*

The length of a fœtus is measured from vertex to breech.

1. Fourth month, M., length 3·5 in.; C. of G. 1·5 in. from V., 2 in. from B.
2. Early fifth month, F., length 6 5 in.; C. of G. 3·25 in. from V., 3·25 in. from B.
3. Early fifth month, F., length 5·5 in.; C. of G. 2·6 in. from V., 2 9 in. from B.
4. End of fifth month, M., length 7·3 in.; C. of G. 3·7 in. from V., 3·6 in. from B. (head presentation).
5. End of fifth month, F., length 7 1 in.; C. of G. 3·5 in. from V., 3·6 in. from B. (needles cross in pericardium on the anterior surface of right auricle).
6. End of sixth month, F., length 8·25 in.; C. of G. 4·125 in. from V., 4·125 in. from B.
7. End of seventh month, F., length 12 in. (breech presentation) (needles cross within pericardium close to right auricle).
8. Middle of eighth month, M., length 11·4 in.; C. of G. 6 in. from V., 5·4 in. from B. (head presentation).
9. Middle of eighth month, F., length 11·1 in.; C. of G. 6·5 in. from V., 4·6 in. from B. (vertex presentation) (artificial respiration, partial inflation of lungs, and corresponding descent of heart and liver).
10. Early ninth month, M., length 11·25 in.; C. of G. 6 in. from V., 5·25 in. from B.
11. End of ninth month, length 13 in.; C. of G. 7 in. from V., 6 in. from B. (needles cross in pericardium close to right auricle).
12. End of ninth month, F., length 13·2 in.; C. of G. 7·2 in. from V., 6 in. from B. (needles cross in pericardium close to right auricle).
13. End of ninth month, M., length 12·4 in.; C. of G. 6·7 in. from V., 5·7 in. from B. (vertex presentation).
14. End of ninth month, M., length 13 in.; C. of G. 6·6 in. from V., 6·4 in. from B. (breech presentation).

From this table it will be seen that the centre of gravity is nearer the head than the breech in the specimen of the fourth month only, in the 5 specimens of the fifth and sixth months it is practically midway, and in 7 specimens of the eighth and ninth months it is nearer the breech end. This gradual displacement of the centre of gravity towards the breech end of the fœtus is apparent, not real, for it will be remembered that in every case tested in this respect the intersecting needles meet at the point where the inferior vena cava enters the heart, so that there is no variation in the position of the centre of gravity in relation to this part of the body; it appears to be constant, but owing to a greater elongation of the cephalothoracic portion than of the abdominal portion of the fœtus, the distance from the extremities of the long axis varies, and this causes an apparent displacement. Recent writers have noticed the apparent displacement and have accepted it as real, and so far as I know no actual determination of this point has previously been made.

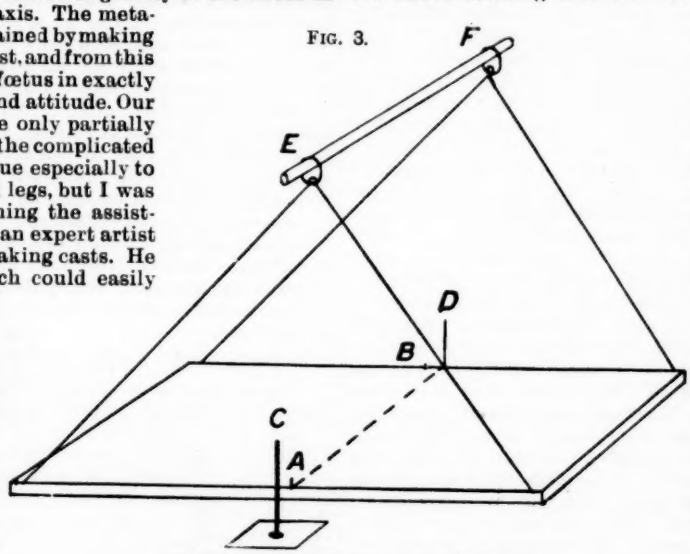
I draw attention to No. 9 in the series, where the centre of gravity was found to be 6·5 in. from the vertex and only 4·6 in. from the breech, a difference so great as to throw doubt on the accuracy of the result. On referring to my original note and drawing of the fœtus I find it stated that prolonged artificial respiration was carried out, that the lungs were partially inflated, and thus the liver and heart were displaced downwards from their usual positions in the thorax, and thus accounted for the displacement of the centre of gravity. I have, however, retained the record in the table.

Relative Positions of Centre of Gravity and Metacentre.

The later experiments to ascertain the relative positions of the centre of gravity and metacentre were carried out on a balance designed for me by

Dr. Womack. (Fig. 3.) It consists of a horizontal table suspended by four strings passing from its corners to the rod E F. A line A B across the table, lying vertically below E F, is sighted by means of two uprights, A and B, which are arranged in alignment. The fœtus in the usual intra-uterine attitude, or its replica in wax, is placed on the table and adjusted until the lines A B, C and D are exactly in alignment. Then the centre of gravity will lie in the vertical plane A B, E F. This plane is marked on the fœtus, and the distance measured from this line to the two extremities of the fœtus, vertex and breech. These measurements record the position of the centre of gravity of the fœtus in relation to its long axis. The metacentre was then obtained by making a plaster-of-Paris cast, and from this a wax model, of the fœtus in exactly the same position and attitude. Our early attempts were only partially successful owing to the complicated form of the fœtus due especially to its folded arms and legs, but I was fortunate in obtaining the assistance of Mr. Fossick, an expert artist in modelling and making casts. He made a mould which could easily be taken to pieces for the removal of the fœtus, and when placed together again enabled him to make an accurate cast in wax of the fœtus.

FIG. 3.



Balance to ascertain the centre of gravity.

The two casts I exhibit were made in the physical laboratory at St. Bartholomew's Hospital, one in paraffin by ourselves and one in a wax mixture made by Mr. Fossick. The wax casts represent accurately the fœtuses in size and contour, and therefore represent the liquor amnii as displaced by the fœtus in utero, and unlike the fœtus, but like the liquor amnii, they are of uniform density. The centre of gravity of the cast therefore represents the centre of gravity of the displaced liquor amnii, and is the required centre of buoyancy or the metacentre. In both these full-time fresh fœtuses the metacentre lies 5 mm. nearer the breech end of the fœtal axis than the centre of gravity, and so far the problem is solved.

TABLE V.—*Relative Position of Centre of Gravity and Metacentre.*

1. Middle of ninth month, M., 2954 grm., length 30·5 cm.
   C. of G. 16·3 cm. from vertex, 14·2 cm. from breech.
   8 cm. from nearest point on dorsal margin.
   4 cm. ,, ,, ventral ,,
   Metacentre 0·5 cm. nearer breech.
   Effective weight 184 grm.
2. Ninth month, F., post-mortem Cæsarean section. No moulding of head, length 31·5 cm., weight 2500 grm.
   C. of G. 16 cm. from vertex, 15·5 cm. from breech.
   Metacentre 0·5 cm. nearer breech.
   Effective weight 156 grm.

It may be of interest to add in respect of the purely mechanical questions raised in the paper a few remarks on the magnitude of the forces which come into operation which Dr. Womack contributes. A fœtus, No. 1, Table V., weight in air 2954 grm., weight in liquor amnii about 184 grm.—the upthrust of the fluid is *2766 grm.* Supposing the fœtus first placed with its long axis horizontal, there would thus be a pair of forces each of 2766 grm. acting at a distance of 0·5 cm. from one another. This constitutes a "couple" whose "moment" is 2766 × 0·5, or *1383 centimetre-grammes.* As the fœtus changes position this "moment" diminishes as it does in most mechanical problems—e.g., the movement of a pendulum, or the closing of a door; but allowing for this, if the rotation of the fœtus were unresisted by friction with the liquor amnii or by the passive resistance of the uterine wall, it would result in the fœtus rotating into the vertical position in so short a time as one-third of a second approximately. When in liquor amnii the couple acting on the fœtus is still the same, but owing to fluid friction the rotator motion would be slower and uniform. It is, however, not possible to calculate with certainty the time of rotation through 90°, but judging from similar problems met with in hydro-dynamics the time required would be approximately 65 seconds. No such rapid rotation is to be expected—the figures are merely given to illustrate the magnitude of the purely mechanical effects if the resistance of the uterine wall is ignored. But the continued action of the couple, always in the same direction, though slow of effect, would be favoured by the intermittent contraction of the uterine wall, the movements of the fœtus and of the mother.

In order to complete this investigation it is necessary to ascertain the relative position of the centres in fœtuses of the earlier months. This I intend to do and to bring the results before the Section at a later period.

In this paper I have avoided criticism of the views of others, for I venture to think that the systematic experimental work which I have done will be of more value than criticism, and will for the future help to remove much speculation and many sources of error on which so much that has been written on this subject has been based.

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THE TREATMENT OF WOUNDED BY VACCINES.

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A VERY large number of wounded must have been treated with vaccines since the commencement of the war. Very little has been published on the subject, nor is the reason for this difficult to find. The results have not been impressive. Temperatures do not fall by crisis, nor discharges cease as if by magic. Careful statistics, compiled long after the termination of the war, may show some day that the duration of wounds has been shortened by vaccine treatment. At present we have to rely on clinical impressions to decide whether vaccines do any good at all. Perhaps we may reflect that it is not only vaccines which fail to find distinct confirmatory evidence of success in the severe septic cases brought over to Great Britain. If the principles of Listerism and modern surgery depended for their proof on the lessons of the war, probably the scoffer would remain unconverted. After watching a discharging wound being dressed for many months with sterilised dressings and gloved hands with little obvious improvement, he might be inclined to suggest that a little sepsis should be tried. Indeed, some of the best descriptions of the medical conditions of the present war are those written by Larrey, Napoleon's chief medical officer.

The following article is based on experience of the treatment of wounded at the British Red Cross Hospital, Netley. The principles stated are those which appear to be the best working rules. When diverging from them bad results have often followed. But the statements made are not intended to be too dogmatic. The slighter cases are rarely treated with vaccines, nor do they call for it. Hence the article in general applies to severe or indolent cases. Further, the patients are rarely seen within a week of being wounded, and the interval is usually two or three weeks or longer. I do not doubt that vaccines do good in such circumstances. In few instances will definite evidence be found, and the surgeon can sometimes parallel these with cases in which no injections were given. Certainly the effect of vaccines is not so marked as to render it justifiable to run risks of making the patient worse. Therefore the dose must always be on the side of caution, especially at the commencement. The greatest care must be used in this calculation of doses, but the weapon of vaccines is too powerful to be laid aside lightly.

The Measurement of the Action of a Vaccine.

The conditions to consider in deciding what action a vaccine is having are the temperature, the general condition, the amount of discharge, and the rapidity of healing of the wound. The temperature is the main guide.

Temperature.—The typical vaccine curve would be a slight rise, 0·5° to 1°F. for the negative phase followed by a fall. After a few days the temperature commences to rise again. A second dose may be given before this occurs, and then the cycle is repeated. Such typical curves are very rarely seen. If an injection causes a rise of more than half a degree, the patient is usually made definitely worse. Hence such a rise must be avoided. Even a rise of half a degree should be looked upon as a signal that the dose was too large. The curve to hope for is one which falls steadily without rises after injections. As this is what occurs when a case does well without vaccines, by aiming at this we are cutting away any evidence of the action of the injection. Yet this gives the best results. Thus the object is to give the largest dose which causes no rise of temperature, and those cases do best which stand the biggest doses. The difficulty of attaining this object is obvious.

In chronic cases with normal or almost normal temperature, the object should be the same—that is, to give the largest doses possible without causing a rise of temperature. The afternoon or evening temperature on the day following injection is the most important. A rise of temperature more than 48 hours after injection may be referred to other causes. After such an interval the surgeon will similarly claim the credit of a fall.

The amount of discharge.—An increase may occur temporarily after an injection, but this has not the importance of a rise in temperature. If the temperature is falling an increased discharge is not an indication to give a smaller dose.

General condition.—Patients frequently describe headache and all manner of symptoms following an injection. Most of these may be neglected, but the general appearance, the pulse, and the appetite should be taken into consideration during a course of vaccines.

Indications for and against Vaccine Treatment.

Vaccine treatment is unnecessary for mild cases. Given by suitable methods, a vaccine is not contra-indicated by any degree of severity or acuteness. Whenever possible, an autogenous vaccine should be given. Obviously it is impossible to prepare a separate vaccine for each case. The more acute the condition is the more important it becomes that an autogenous vaccine should be employed, but while this is being prepared a stock vaccine should be used.

Character of the Bacteria Present in Wounds.

It is not intended to deal with this question beyond its bearing on vaccine treatment. At the present time streptococci are present in the great majority of septic wounds. Other organisms commonly found are staphylococci, bacillus coli, bacillus proteus, numerous strains of coliform bacilli, and bacillus pyocyaneus. Anaerobic and diphtheroid bacilli need not be considered.

Streptococcus.—The streptococci isolated agree, almost without exception, with the cultural characteristics of streptococcus pyogenes. Morphologically considerable differences occur in the size of the coccus and the length of chain. The smaller the coccus the more virulent it appears to be. When several varieties of bacteria are present it is not always possible to isolate the streptococcus in culture. The size of the coccus can be judged from the film, but it is doubtful whether the length of chain can be decided when only a few are present. When possible the growth in milk should be used for this purpose. Streptococcic vaccines may be labelled according to these differences—viz., size of coccus and length of chain, and when a stock vaccine is used that one is selected which appears to be nearest to the coccus of the case.

Bacillus coli.—Typical strains are frequently isolated. A bacillus which grows on McConkey's neutral-red bile-salt lactose-agar medium with permanent red colonies almost invariably gives the other typical cultural characteristics of bacillus coli. A stock vaccine of this may be employed.

Coliform bacilli.—Numerous strains of coliform bacilli are met with, differing in their cultural characteristics in various degrees and certainly differing in virulence. These strains grow on McConkey's medium with orange or yellow colonies and differ in the production of acid and gas in various carbohydrates, in the formation of acidity and clotting in milk, and in their action on gelatin, neutral-red broth, and other media. For example, a strain may have the following characteristics: Litmus milk, acid but no clotting; dextrose and lactose, acid but no gas; mannite and raffinose, no change; gelatin, no liquefaction; neutral-red broth, fluorescence produced; indol reaction negative. When possible, autogenous vaccines should be prepared. Apart from doing this, a separate vaccine should be prepared from each strain as it is found. The complete cultural characteristics of the bacillus are kept recorded, and when a stock vaccine has to be employed that one is selected of which the cultural characteristics agree with the bacillus of the case in question. This is a more satisfactory plan than the use of a polyvalent vaccine combined from many strains.

A laboratory can soon accumulate vaccines prepared from fifteen or twenty strains and can gain some knowledge of suitable doses to give of each. Different strains vary in virulence, and it appears that the less gas and the less acid formed in carbohydrate media, the greater is the virulence of the organism. It is possible that this may be extended to say the less change the bacillus produces in the culture media in which it grows the greater is its virulence.

Bacillus proteus.—This is found very frequently. It may be considered to fall within the group last described.

Bacillus pyocyaneus.—When this is the predominant organism the condition is nearly always mild or rapidly improving.

The presence of these groups of bacilli may be due to secondary infection of the wound by the patient, or they may be present on the muddy clothes and in the dirt carried into the wound on infliction. In a flesh wound of the leg of an officer a Gram-negative bacillus was present in pure culture with the following characteristics: McConkey's medium, orange colonies; litmus milk, acid, no clot; dextrose, lactose, and mannite, acid but no gas; raffinose and salicin, no change; gelatin, no liquefaction; neutral-red broth, no change. Such characteristics are distinct and not common. Had the infection been secondary and due to the patient this bacillus should have been recoverable from the stools, but no such organism could be found.

Staphylococci albus or *aureus* are present in most wounds. In comparison with the other bacteria they are of slight importance.

Dosage.

The endeavour is to give as large a dose as possible without producing a rise of temperature. The method of dosage described is based entirely on the treatment of wounds at Netley. Probably much larger initial doses and more rapid increases can be given without bad results in numerous cases, but if this is done there will be occasionally an unfortunate result with marked rise of temperature and severe symptoms, and when this happens the results are usually prolonged. The best improvement which can be expected from vaccines in the wounded cannot be held to counterbalance a few such instances. When this hospital was first opened, larger doses were given and the results were unsatisfactory. Therefore it is only justifiable to commence with very small doses.

Initial Doses.

The following remarks refer to injections of simple vaccines. Mixed vaccines containing two or more bacteria are considered later.

Streptococci.—Commence with 1 to 2 millions, not exceeding 2 millions. When an autogenous vaccine is not being used, or during preparation, select a vaccine of similar size of coccus and length of chain. In general, the coarser the coccus the less is its virulence. For the administration of such doses a vaccine should be standardised to contain 10 million cocci to the cubic centimetre, and a stronger vaccine should also be prepared for use when larger doses have to be given. This may contain 50 millions or 100 millions to the cubic centimetre.

Bacillus coli.—An initial dose of 30 millions can be used.

Coliform bacilli.—The varying virulence of different strains has been referred to. Of the types which appear most powerful, forming little little acid and gas in carbohydrate media, the initial dose should be 2 to 5 millions. At the other end of the series will be bacilli more closely related to the typical bacillus coli. Of such strains probably larger initial doses may be given, but as a general rule it is inadvisable to inject as a first dose more than 5 millions of any bacillus which grows on McConkey's medium with yellow colonies. With strains which approximate to the bacillus coli the increase in subsequent doses can be made more rapidly in preference to commencing with larger doses. The same rule applies to bacillus pyocyaneus and also to bacillus proteus, which in wounds appear to be of higher virulence than bacillus coli.

Staphylococcus aureus.—It is rare to find staphylococcus aureus in pure culture except in secondary abscesses. An initial dose of 30 millions may be given.

Subsequent Doses.

As a rule five days should be allowed between successive doses. When a case is progressing satisfactorily each successive dose should be 50 per cent. larger than the previous one. But in the treatment of wounded it is rare for the bacteriologist to have a case which progresses satisfactorily from the first injection, and when he does he may temper his pride with the suspicion that it would have done as well without him. Some time during the course the temperature and progress will cause trouble, and the decision of the correct dose is a matter of very great difficulty. No such thing as routine treatment should be admitted. Every injection must be considered carefully and the surgeon consulted in any difficulty. Frequently he can give a simple explanation of a rise of temperature. The changing of a splint, the gathering of a small abscess, the visit of a relative or other common disturbing influences may be the cause.

Certain difficulties frequently met with will be mentioned. 1. If the temperature has obviously risen as the result of the previous injection, give a dose of half the amount. 2. The greatest difficulty in the vaccine treatment of wounds is the marked irregularity of temperature so commonly present. Thus over a period the evening temperature may be

about 102° F., with occasional rises to 103°. After the injection the evening temperature may be 103°. It is impossible to say whether or not this is the result of the vaccine. The following general rules have been adopted. If such a rise occurs after the first injection the same dose should be repeated. If on a third visit it is found that the temperature as a general average has remained the same, then an increase in dose should be made. This should be 25 per cent. Subsequently the temperature, though gradually subsiding, may remain irregular. The dose should be carefully increased by 25 to 50 per cent. each time. If after any injection the temperature has definitely risen the dose should be reduced to the amount of the last but one, or if the rise is marked to half of the last dose. 3. When a previously irregular temperature has fallen to normal it must be regarded with suspicion for some time, especially if the fall has been rapid. Frequently it will rise again. The opportunity to increase the dose unduly must not be taken.

Cases with acute septicæmia.—Such a condition is not a contra-indication to the administration of vaccines. Almost invariably a streptococcus is the causal organism. Time is so important that a stock vaccine should always be given while an autogenous one is being prepared. The injections should be repeated every two or three days. The initial dose should not exceed 2 million streptococci.

Mixed Vaccines.

Mixed infections occur in the majority of wounds. Numerous bacteria may be present—streptococci, staphylococci, bacillus coli, coliform bacilli, and bacillus pyocyaneus. The question arises whether a vaccine containing a mixture of bacteria should be given or whether we should confine ourselves to giving one species at a time. In the treatment of wounds this is a practical problem of great difficulty. Obviously it is far simpler to watch the effect of a simple vaccine. Undoubtedly the most important infecting bacterium is the streptococcus. Yet in the more slowly progressing cases the frequency and number of the coli group of bacilli impress one. In such circumstances a small dose of coliform bacilli may produce a marked reaction and tolerance to increases may be very small. It appears possible that the older and more indolent a wound is the greater is the importance of this group of bacilli. In deciding whether to give a mixed vaccine special attention should be directed to this point. Thus in a recent case a streptococcus should be treated as the predominant organism almost or completely to the exclusion of everything else, but the more chronic and resistant a case has been the greater should be the importance ascribed to the coli group of bacilli in the administration of the vaccine. Hence in the latter case a mixed vaccine of streptococci and bacilli should be given.

Next we have to consider, with a view to dosage, whether we can arrive at any conclusions as to the relative number of the different bacteria which were present actually in the wound. If we can do so it will influence the proportions to be given in a mixed vaccine. Undoubtedly this is very uncertain. A film of the pus will give some idea of the comparative number of cocci and bacilli, but it must be noted:—

1. With regard to cocci. When both are present it is usually impossible to estimate the relative number of streptococci and staphylococci from a film, while in cultures a streptococcus is often hopelessly overgrown by staphylococci or diphtheroid or coliform bacilli.

2. With regard to bacilli. In a film the coli and coliform organisms cannot be distinguished. The incubation and plating of mixtures of known strength—for example, equal numbers of bacillus coli and bacillus typhosus—show how unreliable this would be as a measure of the relative numbers present in a wound.

Thus in practice a film of pus rarely tells more than the approximate relation of cocci and bacilli, and subsequent cultures cannot be relied upon. A further difficulty is the variation in virulence of different bacteria from the standpoint of numbers. Hence occasionally the film of pus may prove the predominance of a streptococcus. On the other hand, it is improbable that any excess of bacilli over streptococci would justify the assumption from this evidence that the bacilli were more important than the cocci. Therefore, practically, in deciding the doses of streptococci and bacilli to be given in a mixed vaccine the relative numbers found in a film or in cultures afford little assistance.

Dosage of Mixed Vaccines.

The initial dose of each bacterium need not be smaller than the amounts given above under the different headings. In subsequent doses the bacteria considered to be most important should be increased more rapidly than the other or others. If more than one is increased simultaneously to the same extent the cause of a rise of temperature after an injection cannot be ascribed to one species, and the dose of each has to be diminished. The most important bacteria should be increased according to the description given above—that is, by increases of 50 per cent.—while the others are increased by 33 per cent. In order to be able to vary the proportions in this way the vaccine of each type must be kept separate and the required dose measured from each bottle at the time of injection. However, some of the commoner combinations may be kept mixed. Thus frequently streptococci, bacillus coli, and bacillus proteus are present together, and a stock mixture of bacillus coli and bacillus proteus may be used in the proportion of three bacillus coli to two bacillus proteus, while the streptococcus is kept separate. It can rarely be advisable to give more than three types at the same time.

Operations on Septic Wounds.

A vaccine should not be given within 36 hours previous to any operation on a patient with a septic wound. Even a small counter-incision through healthy tissues is followed frequently by an immediate and marked rise of temperature and much discharge. During a course of vaccines such an operation should be considered to take the place of an injection, the next dose being given five days later. This does not apply to the commencement of injections in acute streptococcal cases of a septicæmic type.

NEW SANATORIUM FOR CONSUMPTIVES AT HAM GREEN, BRISTOL.—The erection of the new sanatorium for consumptives at Ham Green was commenced last September. The sanatorium will contain two pavilions for the treatment of convalescent patients, with 20 beds in each; one pavilion with 20 beds will be occupied by acute cases; and in addition there will be an administration block of three floors. The estimated cost is £12,000.

HÆMOPTYSIS DUE TO HIGH TENSION.

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WHILE it is a wholesome rule to attribute cases of pulmonary hæmorrhage in which there is no evidence of heart disease, aneurysm, or malignant disease to tuberculous disease of the lungs, I have been struck by the occurrence of a series of cases of hæmoptysis in middle-aged or elderly people with high arterial tension. My attention was first directed to this subject by a paper read by Sir Andrew Clark before the Medical Society of London in October, 1889. The paper is intituled "Some Remarks on the Non-tubercular and Non-cardiac Hæmoptysis of Elderly Persons."[1] In it he describes at some length four cases of hæmoptysis occurring in persons, two being about 50 years of age and the other two over 60 years of age. From a consideration of these and similar cases he arrived at the conclusion "that there occurs in elderly persons, free from ordinary diseases of the heart and lungs, a form of hæmoptysis arising out of minute structural alterations in the terminal blood-vessels of the lung." He pointed out that these cases were aggravated by the administration of strong astringents, but were successfully treated by calomel, alkalies, and iodide of potassium, and the limitation of fluid. Unfortunately, at the time Sir Andrew Clark read his paper means of estimating blood pressure were not generally employed, otherwise I feel convinced that the cases he recorded would have shown, in addition to their other symptoms, high blood pressure.

I have seen a number of cases in which pulmonary tuberculosis, aneurysm, or other serious lesion has been suspected, but the after-history of the cases has proved that the diagnosis of arterial degeneration with high pressure was correct. The following case is the first which I definitely recognised as belonging to this group.

CASE 1.—In February, 1890, I was called into the country to see a medical man aged 62. The history I received was that four weeks prior to my visit he had been thrown out of a gig; otherwise there was nothing in the past to elucidate the case. Three days before the consultation the patient had spat up blood, on the following day two or three tablespoonfuls, and the next day about the same. He was much alarmed about his condition and talked of a leaking aneurysm or consumption as the cause of the bleeding, and as his partner was not prepared with a definite diagnosis I was asked to see the patient. I found a big, rather plethoric man with very rigid vessels, but no evidence of valvular disease. Except for some râles at the bases the lungs were healthy. I could not detect anything in the pharynx or larynx to account for the bleeding. Not being able to discover any other cause for the hæmoptysis and bearing in mind Sir Andrew Clark's paper, I made the diagnosis of bronchial hæmorrhage from atheromatous vessels. I advised that the astringents which the patient had been taking should be discontinued, and I ordered five grains of calomel, followed by saline aperients, with rest in bed and a low diet. The patient made a rapid recovery. In the following September he had "a stroke." Seven years after the consultation he died of heart failure.

In the next case to which I will direct attention there was the history of former attacks of hæmoptysis.

CASE 2.—Man aged 57. This patient, whom I saw in March, 1899, had evidently suffered from pulmonary tuberculosis in the past; the percussion note at the right apex was impaired, the vocal resonance was increased, and the breath sounds were of a bronchial character. After having excluded the nose, naso-pharynx, pharynx, and larynx as the source of the hæmorrharge, I came to the conclusion that it was of pulmonary origin. I wrote to the patient's medical attendant as follows: "I regard the bleeding as due to what Sir Andrew Clark calls the arthritic diathesis—i.e., persons whose vessels are brittle and easily rupture." I advised careful dieting, not much butcher's meat, and very little alcohol. Medicinally I suggested iodide and bicarbonate of potassium, with an occasional dose of calomel or blue pill. There was no further recurrence of the hæmoptysis, but the patient had several severe attacks of nose bleeding. His medical attendant writes in June, 1915: "He is now wonderfully well for an old man."

This case illustrates a point upon which I would venture to lay emphasis—viz., that hæmoptysis, even though it occurs in a patient who has had pulmonary tuberculosis, is not necessarily due to a recurrence of this disease, but may be the result of high tension with degenerate vessels. This is, I maintain, a most important fact to bear in mind, as the treatment for the two conditions is on different lines.

I now come to three cases in which the hæmoptysis was definitely associated with high tension.

CASE 3.—Man aged 43. In December, 1908, his medical attendant sent the patient to me on account of hæmoptysis. His height was 5 ft. 8 in. and weight 16 st 12 lb. His lungs were somewhat emphysematous. There was no cardiac murmur, but the aortic second sound was accentuated. Blood pressure 190 mm. Vessels of the posterior wall of the pharynx much dilated. There was a subconjunctival hæmorrhage, and the patient stated that in the past he had suffered from epistaxis. The urine contained a trace of albumin. I wrote to his doctor as follows: "I regard the bleeding as coming from the pharynx and due to the condition of his vascular system. Unless he takes care he will get an attack of cerebral hæmorrhage." I ordered a regulated diet, and I suggested that a little wholesome starvation would benefit the patient. Medicinally I advised three grains of iodide of potassium with half a minim of liquor trinitrini in chloroform water three times a day, with an occasional dose of blue pill followed by white mixture.

The patient came to see me in February, 1909. I found him much improved; he had lost 15 lb. in weight and his blood pressure was 170 mm. There had been no return of the hæmorrhage. The patient continued much in the same condition, except that his blood pressure showed a tendency to rise, and once reached 200 mm. In October he had an attack of right hemiplegia, from which he made a fair recovery and was able to return to business. I saw him two or three times in the spring of 1910; his pressure varied between 205 and 230, and hæmorrhages into his retina were noted. The last time I saw him was in June, when his blood pressure was 197 and his weight had fallen to 14 st. 4½ lb. As he complained of headaches I ordered the application of leeches from time to time, or general bleeding if he were threatened with an apoplectic attack. From his medical attendant's account he got on very well until the late autumn, even going to Switzerland for business purposes. On Nov. 8th he went to town, and while in his office he complained of headache and fell back unconscious in his chair. An ambulance was procured, into which he was put. On his journey home his breathing became stertorous, his face flushed, and there was twitching of right arm, and he died in the ambulance, evidently from a large cerebral hæmorrhage.

The next two patients are still alive, so that I cannot speak with the same degree of certainty in regard to the diagnosis as in the last patient.

CASE 4.—A woman aged 57. I was called in consultation on account of several attacks of hæmoptysis in the course of the previous week, and one medical man who saw her expressed the opinion that she was suffering from acute phthisis. In a letter I wrote to her former medical attendant, who had recommended me to be called in, I said: "I came to the conclusion that there was no evidence in favour of tuberculosis, certainly not acute pulmonary tuberculosis. She has high tension (170 mm.), the aortic second sound is

[1] Transactions of the Medical Society, vol. xiii., p. 9. THE LANCET, Oct. 26th, 1889, p. 840.

accentuated. I think that the liver is a bit enlarged, and I fancy that she takes more gin than is good for her, altogether I consider that the hæmoptysis is due to vascular changes and not to pulmonary consumption." I ordered a low diet, no gin to be taken, and a mixture of sulphate of magnesium with a few drops of dilute sulphuric acid; as soon as the bowels had been freely moved by this mixture it was to be replaced by one containing iodide of potassium. Fifteen months later her medical attendant wrote to me as follows: "She recovered from the hæmoptysis and has not had a day's illness since. Of course, she leads a very careful life."

Probably the hæmoptysis will bring about a lengthening of this patient's days due to her observing the rules that were laid down for her guidance. The last case to which I shall direct attention is as follows:—

CASE 5.—A man, aged 60, whom I saw in consultation on Jan. 14th, 1915. Three years previously he had had a large hæmoptysis, one bout of bleeding, and no more. There was no return of hæmoptysis until Dec. 29th, 1914, when he had an attack, and he had had several attacks between this date and my visit to him. He was a well-built, healthy looking man, but rather pale, probably from loss of blood. On taking his blood pressure, which I found to be 180 mm., a sharp attack of hæmoptysis immediately ensued. The aortic second sound was accentuated. In the patient's condition it was impossible to make a satisfactory examination, but I came to the conclusion that the hæmorrhage was due to the condition of his vascular system and not to pulmonary tuberculosis. The sharp attack of hæmoptysis which immediately ensued upon taking the blood pressure illustrates one of the risks of this procedure. I have heard of a fatal attack of cerebral hæmorrhage occurring while the blood pressure was being taken. Having regard to the patient's high tension I ordered the inhalation of amyl nitrite and a grain of the hippurate of lithium three times daily. The patient came to see me on March 5th. He told me that the inhalation of amyl nitrite had been quite successful in stopping the bleeding, only two capsules being required. There has been no return of hæmoptysis. His blood pressure was 162. I could not find anything amiss with the lungs. Heart's impulse in fifth space, nipple line. No murmur; aortic second sound accentuated. Urine 1012, free from albumin.

This group of cases will, I think, be sufficient to drive home the conclusion that in certain cases of hæmoptysis the cause is to be sought in the condition of the vascular system rather than in pulmonary tuberculosis. As I have already stated, it is most important from the patient's point of view that this condition should be recognised, as a different line of treatment is required in the hæmoptysis due to high tension. I advise inhalation of nitrite of amyl at the time of the hæmorrhage, with low diet and not too much liquid. When the bleeding has been arrested, then attempts should be made to regulate the patient's mode of life so as to reduce the high blood pressure. The prohibition of alcohol, the limitation of butcher's meat and salt, and a generally restricted diet are indicated. If the patient be engaged in business his hours of work should be abridged, and if the case be a serious one it may be necessary to advise that all work be discontinued for a time or even permanently. The skin should be kept active by means of warm baths, and a daily action of the bowels, a rather loose motion being aimed at, should be secured. Drugs such as the iodide of potassium and lithium hippurate should be given, and an occasional dose of calomel or blue pill is most useful in lowering tension. By these means further hæmoptysis may be prevented and the patient's life prolonged, but should apoplectic symptoms threaten prompt venesection should be carried out.

Wimpole-street, W.

THE TREATMENT OF CYSTITIS BY INTRA-VESICAL INJECTIONS OF LACTIC BACILLUS CULTURES.

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FROM correspondents and by private letters addressed to me I have learned how interested many surgeons are in this method of treatment.[1] Many questions have been asked. The inquiries may be stated—namely, In what forms of cystitis should the treatment be employed? When is irrigation and injection by catheter suitable, and when is suprapubic drainage indicated? How is the culture fluid prepared? How is the treatment carried out, and for how long? Is there any difference in the results obtained from lactic bacillus injections, as contrasted with the effects from washing with dilute solutions of lactic, hydrochloric, or acetic acids? When large quantities of mucus collect in the bladder is not the action of lactic bacilli interfered with? Do the lactic bacilli injections increase the mucous secretion? Has the lactic bacillus any effect upon the pyogenic organisms?

To reply to these inquiries by a letter would probably fail to satisfy the desire for information, hence this short article on the subject. While stating the questions categorically for the sake of clearness the answers to the inquiries are probably better conveyed by a short consideration of the whole question of the treatment and what led up to it.

It was not in connexion with cystitis that I first employed lactic bacillus cultures, but as applied to sloughing surface wounds. A suppurating sac or a putrid granulating surface washed with lactic bacillus culture fluid was found to clean up rapidly, and if gauze or lint soaked in the fluid was left in contact with the sore the cleansing and healing effect was often surprising. It was found to act more satisfactorily than chemical antiseptics, and the lactic bacillus not being a pathogenic organism produces no toxic effects or local irritation. On account of its germicidal action on pyogenic organisms its employment might be most useful as applied to all kinds of gunshot wounds where infective organisms are likely to be present. Many years ago (1894) I satisfied myself that the presence of lactic bacillus in a fluid culture medium retarded, and in some instances stopped, the multiplication of such pyogenic organisms as staphylococcus pyogenes aureus and albus, streptococcus pyogenes, and bacillus coli communis, and also diminished the virulence of their toxins. It was therefore with the view of reducing the power of multiplying or destroying the septic organisms that the lactic bacillus cultures were employed. At first a simple filtrate of butter-milk, the whey, was used; now a pure culture of Bulgarian bacilli in a solution of sugar of milk is preferred. The method of preparation is: dissolve 1 part of sugar of milk in 40 parts sterile water, boil it for ten minutes and allow it to cool, add one tube of Oppenheimer's lactogen to 20 ounces of the solution, and keep it, under precautions against contamination, at a temperature of 70° F. for 96 hours, shaking the

[1] Newman: The Treatment of "Incrusted Cystitis," THE LANCET, May 1st, 1915, p. 933.

flask occasionally. Great care is required to keep the cultures pure.

Prior to using lactic bacillus culture fluid for the treatment of cystitis with pyuria and decomposition of urea, I was in the habit of washing out the bladder with weak lactic acid (℥iii ad Oi) or hydrochloric acid dil. (℥iss ad Oi), but the results were not always satisfactory, although when phosphatic crusts had formed on the mucous membrane they speedily disappeared.

In an article in THE LANCET[2] I pointed out that—

> The organisms which invade the bladder may be divided into two classes—those which induce decomposition of the organic constituents of the urine, and those which cause little or no chemical change in these substances. This distinction is a very important one. When organisms which do not possess the power of decomposing the organic constituents of the urine are introduced into the healthy urinary tract they fail to produce any serious effect. For example, a pure culture of the bacillus coli or of the tubercle bacillus may fail to induce cystitis when injected into the uninjured bladder, but if separately, or along with them, urea-decomposing organisms are introduced, acute cystitis is sure to follow. When the infection is "mixed" the progress of the disease is usually very rapid.

When the organisms do not decompose urea as a rule the treatment is simple, and a good result is easily obtained; but when the cystitis is due to *organisms which decompose urea* the carbonate of ammonia formed renders the urine very irritating and offensive; the bladder and urethra are unable to tolerate active local treatment. Consequently great care is required in the selection of the agents to employ, in fear that the irrigation in place of relieving the condition may aggravate it. Probably the best agent to use to begin with is permanganate of potash 0·025 per cent., and gradually increasing to 0·1 per cent. solutions. In some cases at first the bladder may only admit a few ounces; the urine is blood-stained, highly alkaline, but not viscid. In such instances continuous irrigation for ten minutes through a double catheter is most useful, the ingress irrigation being raised to 2½ feet and the egress vessel to 1½ feet, so that the fluid within the bladder is submitted to a constant pressure of a little over 1½ feet column of fluid. This may be repeated daily.

In other instances the capacity of the bladder is considerable, but the urine is offensive and viscid, so that difficulty is experienced in irrigating on account of the large quantity of mucus present. Here it is necessary before irrigating with antiseptics to cleanse the bladder as thoroughly as possible of mucus, otherwise the remedy employed fails to come in direct contact with the mucous membrane. The best solvent of mucus is potassium hydrate in solution (℥i ad Oi); irrigate till the fluid comes away clear, next wash the bladder with sterile water until what escapes is neutral, and afterwards fill the bladder with the lactic bacillus culture fluid. This is drained off. Then 2 ounces are injected into the bladder and allowed to remain as long as the patient can retain it. By setting up an acid fermentation nascent lactic acid continues to be formed, while the lactic bacilli destroy the urea-decomposing organisms, and neutralise their toxins. The lactic bacillus is extremely virile and in a bacterial contest with the septic organisms it is always the victor. Fortunately its own toxin—lactic acid—while being harmless is a good solvent of phosphates. The lactic bacillus culture fluid is therefore a remedy in two ways.

[2] Newman: Cystitis, its Causes and its Treatment, THE LANCET, Feb. 24th (p. 490) and March 2nd (p. 570), 1912.

When the symptoms point to a subacute cystitis with decomposition of urea prior to evacuation intermittent catheterisation and irrigation, followed by instillations of pure lactic bacillus cultures, may soon effect a cure. But the treatment must be carried out regularly, because, if interrupted before the bladder is thoroughly cleansed, the pyogenic bacilli have an opportunity of reasserting themselves. The bladder must be distended as fully as possible, short of producing pain, and evacuated from four to six times at each sitting with a syphon arrangement; syringes are of no use.

The simplest plan is to have the first limb of a T-tube fixed to a gum-elastic catheter; to the second limb of the T is attached a clipped rubber tube, leading from an irrigator elevated 2 feet above the bed to give ingress pressure; and the third limb is connected with a clipped rubber tube falling into a vessel on the floor, which will give an egress suction of a 2-foot fall. The tubing and catheter are filled with solution, the egress tube is closed with a clip, which, after the catheter has been passed into the bladder, is opened, and so allows the contents to escape, but the bladder must not be emptied, as that is liable to cause irritation. The egress clip is then closed and the ingress tube opened, distending the bladder till the patient complains of discomfort; the solution is again allowed to flow out into a glass vessel and the irrigation is repeated until the fluid escapes perfectly clear; the culture fluid is then introduced as described above. This is repeated, morning and evening, until the urine is sterile.

The mucous secretion is not increased by the treatment, but the mucus is rendered less viscid. When the patient is seen at an early stage, and the treatment can be regularly carried out, good and well, but in many cases before the patient is seen the symptoms have developed, and the urinary difficulties have become so great that intermittent or continuous catheterisation with irrigation is out of the question. The infection may have extended from the bladder to the ureters and kidneys, and the general health is steadily becoming impaired, slight feverish attacks occur at intervals, and toxic poisoning begins to show itself; then a suprapubic drain must be established. Or, on the other hand, there may be a urethral stricture or an enlargement of the prostate, and the contents of the bladder are found to be so viscid that they will not flow through an ordinary catheter, nor can they be washed out with the irrigator. When this is the case, or when there are hypertrophy of the muscular coat and sacculation, a stone, or phosphatic incrustations, a suprapubic drain must be established to give free exit to the contents of the bladder and to allow of thorough cleansing. A temporary drain of this kind is by far the most effective treatment of chronic cystitis, and even in the most persistent and intractable cases astonishing results are obtained. When combined with free drainage and the lactic bacillus treatment is carefully carried out, not only does the urine become healthy and the mucous membrane normal, but large, inflamed, softened prostates subside, and in a few weeks the wound may be allowed to close.

It is, however, in "incrusted cystitis" that the most conspicuous benefit is obtained from lactic bacillus treatment. In this severe form of inflammation, as a consequence of the intense bacterial action on the mucosa, we have necrosis and shedding of the mucous membrane of the bladder,

which, by the cystoscope, may be seen to be separated in places from the vesical wall and covered with phosphates. The acute stage of the disease is usually preceded by a chronic cystitis which shows little tendency to improve under the treatment commonly employed. The disease is characterised by frequent micturition, tenesmus, hæmaturia, and severe pain at the end of micturition. The loss of blood may be considerable and give rise to the suspicion of a tumour. The capacity of the bladder is reduced to 2 or 3 ounces, or even less. The urine is cloudy, ammoniacal, and contains large quantities of pus and mucus, while calcium phosphates are deposited on standing. On cystoscopic examination the mucosa is seen to be greatly inflamed and covered with irregular masses of thickened mucous membrane and granulation tissue, coated with incrustations of phosphates, which may form plaques. Or the granulations may group themselves into little tumour-like masses topped with a white spongy deposit. Around these plaques or tumour-like masses the mucous membrane is deeply injected, so that the least injury causes bleeding.

One illustrative case may be quoted. I will select an old one, in which the history was followed for a few years.

The patient, a man, was first seen by me on Oct. 12th, 1905, suffering from severe symptoms of chronic cystitis, with contracted bladder and abundant phosphatic deposits on the mucous membrane. At the suprapubic operation the mucous membrane was found to be greatly thickened and there was marked hypertrophy of the muscular coat. The bladder was found deep down in the pelvis like a hard ball, and a considerable thickness of wall had to be cut through before the cavity of the bladder was reached. Explored with the finger the mucous membrane was found coated with a thick incrustation of phosphates, portions of which were removed with a Volkmann's spoon. The urine was very purulent and contained a large quantity of thick mucus.

A moderate-sized rubber tube was fixed in the bladder and brought out through the parietes. The bladder was washed out three times daily with a weak solution of permanganate of potash for the first eight days. By this time the wound, the tube, and the surrounding skin were freely coated with phosphates. From this time, after each washing, the bladder was filled with culture fluid, and the cutaneous surface was sponged with a weak solution of hydrochloric acid, dried by washing with spirit, and afterwards the skin was coated with lanolin. Slowly the incrustations in the bladder became dissolved, and in three weeks they disappeared and the urine lost its ammoniacal odour. The urine became less purulent and the mucus clearer. The drain was kept in for a little over two months, during which time the treatment as described above was carried out twice daily. Washed first with the weak alkaline solution, then with sterilised water, and last with the culture fluid, some of which was allowed to remain. The tube was now removed, the edges of the wound brought together, and the irrigation, &c., carried out twice daily by means of a catheter, which was fixed in. In a week the patient was out of bed and intermittent catheterisation was now employed and continued for two months. At the end of that time he could retain 4 ounces of urine, which was clear and had an acid reaction. The capacity of the bladder increased very slowly, but when I saw him last (November, 1911) he told me that he could retain 10 ounces of urine without any trouble, and occasionally as much as 14 ounces. A sample of urine examined was clear, neutral, and contained no pus, but on bacteriological examination a few bacilli coli were found, the other organisms—staphylococcus pyogenes aureus—had disappeared entirely, and no phosphates were deposited on standing.

Such cases have long been looked upon as hopeless, but with a suprapubic drain and the lactic bacillus treatment carried out as I have indicated good results may be got.

Glasgow.

SCHOOL MEDICAL INSPECTION AND THE BRITISH ARMY.

BY G. FINCH, M.R.C.S., L.R.C.P. LOND., D.P.H. OXON.,

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WHEN we consider those matters which are constantly engaging the attention of the school medical officer, and allow our thoughts to be influenced, as they almost inevitably must be at the present time, by the war which the whole Empire is waging, we are struck by the fact that these matters constitute important factors which will weigh heavily in deciding the issue of that great struggle; for the bulk of the British army, which is being so severely tested across the Channel, is the recent output of the elementary school.

Since August, 1914, the present writers have given considerable attention to the question of the physique of the recruit, and one of us has held a commission in the R.A.M.C.(T.). This medical work has made clear to us the close relationship that exists between school medical work (of which we have both had several years' experience) and the problem of the physical well-being of our army, for the officer whose duty it is to examine and treat the young soldier can best appreciate the importance of the work of the officer whose duty it is to examine and try to obtain treatment for the school child.

It may be as well here to call to mind the fact that during the South African War the rejection of large numbers of recruits by the medical officers brought home to the nation the importance of the physical condition of the population. As a result of the uneasiness thus aroused a commission and a committee were appointed. The Report of the Royal Commission on Physical Training (Scotland) was published in 1903; that of the Interdepartmental Committee on Physical Deterioration in 1904. The chief findings of both these bodies were to the effect that evidence was lacking on which to form any definite conclusion, but that they were not justified in stating that physical degeneration had occurred.

These reports, together with the proceedings at the Second International Congress of School Hygiene held in London in 1906, were the principal causes which led to the passing of the Education (Administrative Provisions) Act, 1907, which made it the duty of all local education authorities "to provide for the medical inspection of children immediately before, or at the time of, or as soon as possible after, their admission to a public elementary school, and on such other occasions as the Board of Education direct," and conferred "the power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools." The councils of counties, county boroughs, boroughs, and urban districts of England and Wales proceeded to appoint a staff of medical officers, both part- and whole-time men and women, whose activities were stimulated and supervised by the Board of Education.

We will now endeavour to point out some of the bearings of school medical work on the question of

the physique of the recruit. The Annual Report of the Health of the British Army (1912) supplies particulars from which the following table has been compiled:—

Table showing Rejections at Inspection or Within Three Months of Enlistment.

Total number of men examined (for year 1911–12), 47,000.

Causes of rejection.	Number per 1000 men.
Under chest measurement	29·2
Diseases of heart, other than valvular disease	24·4
Loss and decay of many teeth	23·2
Defects of vision	21·5
Diseases of eye and eyelids	2·1
Diseases of extremities (from fracture, contraction, luxation, &c.)	20·8
Valvular disease of heart	14·3
Varicocele	8·8
Other diseases of generative organs (non-syphilitic)	2·8
Diseases of veins (varix)	8·5
Diseases of middle ear (including deafness)	8·5
Other diseases of ears	5·0
Flat foot	8·1
Hernia (and laxity of abdominal rings)	8·9
Under height	5·2
Malformation of chest and spine	4·5
Affection of cutaneous system (other than ulcers, wounds, and cicatrices)	4·5
General diseases (other than venereal disease and tuberculosis)	3·7
Under weight	3·6
Impaired constitution and debility	3·5
Diseases of joints	2·7
Defective intelligence	2·7
Ulcers, wounds, and cicatrices	2·1
Impediments of speech	1·1
Other diseases of nervous system	1·9
Venereal disease	1·9
Tuberculosis (all forms)	1·7
Respiratory diseases (other than pulmonary tuberculosis)	1·3
Total rejections for above causes	226·5
All other causes (in part non-medical)	11·3
Total rejections	237·8

That the total rejections for causes as specified above should reach the considerable figure of 22 per cent. does not necessarily imply that men offering themselves for enlistment are of inferior physique to the bulk of the population, for in examining men of the Territorial Force as to fitness for foreign service we have reached a figure approximating to 20 per cent. of rejections, and the statistics published by school medical officers in their annual reports would also lead one to expect some such figure.

For our present purpose we may consider most of the causes of rejection as falling into two main groups, each of which accounts for about one-third of the total rejections from all causes.

Group I.—Conditions generally associated with inferior physique, comprising: Under chest measurement, under weight and height, diseases of heart other than valvular disease, impaired constitution and debility, flat foot and malformation of chest and spine.

How great a part is played by nature and nurture respectively in producing such conditions is still an open question. But the broad and simple fact remains that a great reduction in the above defects would result from more thorough medical supervision and treatment of public elementary school children, combined with arrangements for suitable exercise and adequate feeding.

The Annual Report of the Health of the British Army (1912), with regard to the effect of physical training on the young soldier, states:—

> The increasing value of the present enlightened system of physical training, founded on the Swedish system, works towards the harmonious development of the whole body and is an immense improvement on the old one-sided "gymnastics" training; given patient and capable instructors, physical training is potent for good, impotent for evil. The importance as a valuable therapeutic agent in curing defects which would otherwise lead to inefficiency and discharge within three months is difficult to overestimate; in depôts where special little classes for the cure of defects such as flat feet, deficient chest measurement, spinal curvature, &c., are systematically formed the results in the reduction of the ratio of discharge have been most gratifying to all concerned.

Too great emphasis cannot be laid on the importance of "patient and capable instructors" and "an enlightened system of physical training." It has been our experience to find physical exercises in elementary schools given in such a manner as to be wearisome to both teacher and child, and productive of little, if any, good. To ensure adequate instruction in this subject it would probably be necessary to have superintendents of physical exercises appointed by local education authorities throughout the country.

It is essential to remember in this connexion the important part played by adequate feeding of the growing child; without sufficient nourishment it is futile to expect proper results from either physical or mental education. Adequate physical training and feeding, together with open-air education, should be of considerable avail in effecting a reduction in the number of rejections of recruits in such cases as are comprised in this large group. One of the chief causes of such conditions as "under chest measurement," "under height," and "under weight" is doubtless the increasing urbanisation of the population of the United Kingdom, a condition which is not sufficiently counteracted by "open air" and exercise.

Particularly to be noted is the chest which is not only diminutive in girth but deficient in expansion. This type of defect, a cause of rejection in recruits second only in importance to defective teeth, is only too familiar to the school medical officer as occurring among those children suffering from rickets or enlarged tonsils and adenoids, and also among children who from these or other causes are "too delicate" to attend school regularly and benefit from the active life of a school child.

An interesting reference to flat foot occurs in Dr. J. Kerr's Annual Report to the London County Council, 1910, where it is stated that "conditional rejections from full service in the German army for flat foot were 25 per cent., Swiss 33 per cent., Austrian 21 to 36 per cent." Dr. Kerr proceeds to refer to the important part played by malnutrition as a cause; he ascribes the defect in some children to the wearing of heavy rigid boots, while in others the improper shape of the boots is at fault, by reason of their forcing the great toes outward from the middle line of the body. Another factor we would mention is over-fatigue, especially at a time when

a child's stature and weight are rapidly increasing. All the above causes are preventable; the curative element can be supplied by the local education authority in the form of physical training.

Group II.—The second large group of defects, causing one-third of the total rejections, consists chiefly of surgical diseases which are in great part amenable to treatment, especially if dealt with during school life. Under this heading we include: Loss and decay of many teeth, defects of vision and external eye diseases, diseases of middle ear and deafness, hernia, and diseases of joints.

The "loss and decay of many teeth" has received as prominent a position in the reports of school medical officers as it makes for itself in the above table. As is well known, the treatment of dental caries in men going on active service is now being undertaken by the military authorities. It is hardly necessary to point out how much less expenditure would have been incurred (with a more satisfactory result for the individual) had preventive measures been adopted during school life; had a few visits then been paid to the school dental clinic, teeth might have been preserved, the functions of which must now be carried out by expensive dentures. School dental clinics have now been instituted (most of which are capable of performing a part only of the necessary work) by local education authorities in many areas—195 areas out of a total of 320 have as yet[1] done nothing in the matter of providing school dental clinics.

Defective vision has from the first received considerable attention from school medical officers. By providing during early life suitable correction for errors of refraction we may subsequently find that the acuity of vision is improved and maintained, thereby enabling more candidates to pass the Snellen type test, which is the only one used for examining recruits. In this connexion we might add that the schools for mothers and baby clinics now being formed in many areas should enable the medical officers to detect and treat children suffering from squint at an early age, and with a proportionately greater prospect of curing the squint and preserving vision in the squinting eye.

Ear diseases and deafness in the young if to be prevented or relieved must be dealt with in a thorough manner at an early stage. Children commencing attendance at school are only too often found to be suffering from an ear discharge of several years' standing; it is only widespread medical inspection of children under school age that will deal adequately with this complaint. Better results would thus be obtained in curing ear discharge, and, moreover, the risk of fatal complications diminished. In this connexion the School Medical Service might with advantage examine after their return to school those children who had suffered from such diseases as measles, scarlet fever, and whooping-cough.

Open-air schools will also have a beneficial influence in reducing the incidence of this serious complaint, for education carried on under such improved conditions has been shown to diminish the frequency of catarrhal conditions of the nasopharynx and of enlarged tonsils and adenoids, both of which conditions are well known to be precursors of middle-ear disease.

Many of the surgical conditions causing rejection of recruits, such as hernia, defects of extremities, &c., could most advantageously be treated during school life; once the sufferer becomes a wage-earner he postpones the operation indefinitely because he grudges the time spent in "lying up." Moreover, the earlier these operations are performed the better it is for the development of the child; it seldom happens that a child with hernia is allowed to join in games with other children.

The present war has brought home to the nation the great importance of preventive medicine in dealing with germ diseases in a way nothing else could have done; widespread inoculation against typhoid fever, combined with improved camp hygiene, has reduced the losses from such preventable disease to smaller proportions than has been the case in any previous war. The facts brought forward by medical officers engaged in examining recruits equally with the reports of school medical officers supply ample evidence as to the existence of many preventable and curable physical defects among the children of the nation. In spite, therefore, of the fact that "exercise of the power to make arrangements for attending to the health of children" must lead to increased public expenditure, we may hope that more will be done to deal effectively with the preventable and curable defects which at present are inadequately dealt with either by preventive measures in the schools or treatment supplied by local authorities or voluntary charitable institutions.

Under the present conditions it is not possible for the School Medical Service to cover the ground. We may perhaps hope to see a Public Health Medical Service which would link itself with, and in part supersede, the existing public health and other organisations which already administer the inspection of midwives, the notification of births, the baby clinics and schools for mothers, school medical inspection, and the work of the factory surgeon. Medical officers of such a Public Health Medical Service would be offered work of considerable variety and interest, with a correspondingly increased power to improve the national physique.

[1] See Annual Report of Chief Medical Officer of the Board of Education for 1913.

"TRANSIENT RENAL CONGESTION."

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BY an interesting coincidence Professor F. H. Edgeworth published in THE LANCET of July 10th (p. 72) a clinical note on Transient Renal Congestion and in the *British Medical Journal* of July 17th (p. 109) a special correspondent in Northern France makes brief allusion to a series of cases presenting a similar symptom-complex but with the addition of œdema, and he dignifies the condition with the title of a new disease.

Attention having been called to the subject by two writers it is probable that a number of other cases will be recorded, and it is only by the study of such a series that the claim to the title of a new disease can be established.

The following cases resemble Professor Edgeworth's:—

CASE 1.—The patient, aged 19 years, a thin, rather anæmic clerk, went for a 20-mile walk in the Cotswold Hills in cold weather on April 18th, 1903. In the evening he had some dysuria and noticed that his urine was dark red. Next day the urine was scanty and contained much blood and abundance of blood casts. In three days the free blood had

disappeared, but there was a large amount of albumin and of epithelial casts. The urine gradually cleared and on April 29th (11 days from onset) it was free from albumin and casts. I advised him to avoid prolonged exercise in cold weather, but he went for another long walk on Jan. 9th, 1905, when the hæmaturia, &c., recurred. On Jan. 19th—i.e., 10 days after the attack—the urine was normal.

CASE 2.—The patient, aged 44 years, a man of good physique, but rather obese, with prematurely grey hair and well-marked "arcus senilis," complained of hæmaturia on Feb. 22nd, 1905. He had just returned from Clevedon, where he had been playing in a golf match in a cold wind and drizzling rain. The urine was scanty, deep red, and smoky, containing a large number of normal and broken-up red corpuscles and blood casts. The total quantity in the next 24 hours was under 25 oz. The blood gradually disappeared, but considerable quantities of albumin and of epithelial casts were present for three or four days. By Feb. 28th—i.e., six days after the onset—the urine was quite free from albumin and casts and was normal in quantity. He was warned against playing golf in cold weather, but he played again at Clevedon on Dec. 26th, 1911, and next day hæmaturia recurred. This attack followed a precisely similar course to the former and on Jan. 9th, 1912—i.e., 15 days after the onset—the urine was normal. There has been no recurrence.

CASE 3.—The patient, a healthy looking clerk aged 20 years, played cricket for the first time that season on a cold afternoon on June 13th, 1912, having changed from ordinary clothes to flannels. He said that he "shivered all the time" and about 9 P.M. passed a small quantity of urine "the colour of porter." Next day the urine was deep red in colour and contained a large precipitate of red corpuscles and of blood casts. This case followed a similar course to the others, and on June 24th—i.e., 11 days after the attack—the urine was normal.

All these cases resembled acute nephritis, but in none was any œdema observed. In this particular they are similar to Professor Edgeworth's cases, and the question arises—Does the presence of generalised œdema as observed in these recent cases in Northern France show that the latter are cases of true subacute nephritis as distinguished from "transient renal congestion"? In contrast to the above the following case is of interest.

CASE 4.—An athletic school boy, aged 16 years, entered an office on June 1st, 1910; finding the life too sedentary he cycled every evening and if overheated went for a swim afterwards. When seen on July 10th, 1910, he was passing per diem about 20–25 oz. of deep red urine containing a large amount of free blood, débris, and many blood and epithelial casts. He said he had noticed "a deposit like cocoa in the urine for about three weeks, but that he did not think it mattered." In spite of treatment and confinement to bed until April, 1913—i.e., for two and three-quarter years—his blood pressure has risen from 105 to 125 mm. Hg, and he still has 5 per cent. albumin and many hyaline casts containing atrophied epithelial cells in his urine. The case has drifted on to chronic parenchymatous nephritis, probably because he was not alarmed as were the others by hæmaturia and persisted in taking violent exercise.

Much has been written on the significance of albuminuria and its relation to nephritis, and many theories have been advanced; but the well-known instance of a Cambridge "eight" whose urine was tested and found to be normal before going for a hard row in cold weather and on their return seven of the crew had albuminuria, seems to suggest that there is an individual standard of resistance to the increased strain thrown on the kidneys by violent muscular exercise accompanied by rapid cooling of the body surface by perspiration in a cold atmosphere, and a blood pressure raised to an unknown degree. When this individual standard is exceeded the renal epithelium allows first an escape of albumin and then, if the strain be prolonged, hæmorrhages may occur either in the glomeruli or the tubules, or possibly in both. Such a strain may produce hæmaturia in one individual, epistaxis in another, and a troublesome bronchial cough with expectoration of blood-tinged mucus in a third. The writer has seen this last symptom on more than one occasion in men who have "rowed themselves out" in a hard race.

The analogy of "congestion of the lungs" may be adduced—although this term is usually only a euphemism for lobar pneumonia it will be generally admitted that true acute pulmonary congestion does occur. A patient is seen with all the clinical symptoms of early lobar pneumonia—fever, rapid respiration, pain and evidence of commencing consolidation of a portion of lung, but on the next day the symptoms have subsided and the patient makes a rapid recovery.

If, therefore, lobar pneumonia may occur in all degrees of severity from such a transient congestion to almost complete consolidation of one or both lungs, "grey hepatisation," and death, it would seem probable that acute nephritis may occur in varying degrees of severity and duration; that many recover, but that others pass on to chronic parenchymatous or interstitial nephritis, and it may be predicted that this will be the ultimate result in the series of cases discovered in Northern France.

It may be said that the analogy between lung and kidney is not correct because in pneumonia certain specific micro-organisms are usually found, but that hitherto all attempts to prove that acute nephritis is due to one or more specific bacteria have resulted in failure. Such a micro-organism may be discovered, but it is evident that some lesion must be produced in an organ before a hitherto quiescent bacterium can be "activated."

It is known that the majority of adults have in their upper respiratory tract Gram-positive diplococci, morphologically indistinguishable from pneumococci, and yet a large number of such persons pass through life without an attack of pneumonia. Such immunity shows that the mere presence of the diplococcus is not the determining factor in the causation of pneumonia. Over-exertion, chilling of the body surface causing rise of blood pressure, internal congestion, and local hæmorrhage may prepare a suitable nidus, in one case in the lung for the pneumococcus, and in another for a (?) streptococcus in the kidney, and the infection or non-infection of the lesion by the specific bacterium may decide whether the transient congestion will subside or develop as pneumonia or acute nephritis.

These conditions—over-exertion and "chill"—are ever present among large bodies of troops at the front and they were found in Professor Edgeworth's cases and in those now published.

Clifton.

CHARLES EDWIN MATTHEWS, M.D. DURH., L.R.C.P. EDIN., M.R.C.S.—Dr. Charles Edwin Matthews died at his residence, St. Aubyn's Park, Tiverton, on August 4th, in his sixty-fourth year, from heart failure following an operation. The deceased received his medical education at Bristol and University College, London, taking the M.R.C.S. in 1875 and the L.R.C.P. Edin. in 1877. He graduated M.D. of Durham University in 1896. Dr. Matthews was for many years in practice at Bristol, where he was highly respected; and about seven years ago he left Penarth and took up his residence at Tiverton, where he was school medical officer for the Tiverton education committee. He leaves a widow and four children.

THE CASE FOR SYMPTOMATIC TREATMENT IN GENERAL AND FOR THE ANTIPYRETIC IN PARTICULAR,

WITH SPECIAL REFERENCE TO CRYOGENINE.

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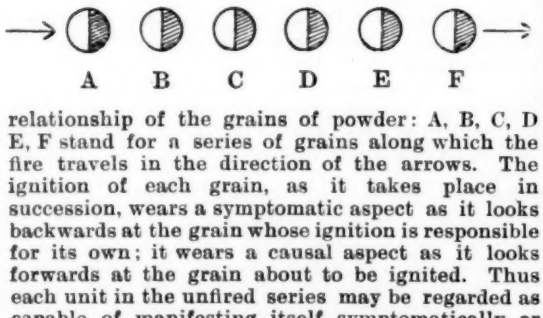
IN the course of my experience of medical practice, both in private as also in the hospital ward, I have been struck by the reluctance shown in respect of the employment of the febrifuge medicament, *quâ* antipyretic—i.e., for the purpose of combating the symptom, rise of temperature. I am convinced that this reluctance is unreasonable, and is in accord neither with the scientific aspects of medicine nor the best traditions of its art; but as this question is part of the larger subject, the rationale of symptomatic treatment, it may be advisable first to give consideration to the last named.

When we come to investigate the individual case of disease which has presented itself with its complaint and its petition for relief, we become aware that we are face to face with the last manifestation of a morbid sequence, which stretches back into the past indefinitely, though we are able to follow it for a limited distance only. There it is before us, the chain of cause and effect, in an unbroken nexus, be the links few or many which we can count; and as we consider any two contiguous links which we may select, we note that by common consent we label the proximal link effect or symptom, the distal link cause. The morbid sequence may be likened to a train of gunpowder, which, having been fired, shows us a sequence of kindlings, as the fire is passed on from grain to grain; each ignition standing to its predecessor as effect, to its successor as cause. Thus each unfired grain of the powder bears *potentially* a two-fold aspect, primarily as an effect (symptom), secondarily as a cause, exactly as it is able first to receive and then to pass on the fire. The following diagram may perhaps emphasise this sequential



relationship of the grains of powder: A, B, C, D E, F stand for a series of grains along which the fire travels in the direction of the arrows. The ignition of each grain, as it takes place in succession, wears a symptomatic aspect as it looks backwards at the grain whose ignition is responsible for its own; it wears a causal aspect as it looks forwards at the grain about to be ignited. Thus each unit in the unfired series may be regarded as capable of manifesting itself symptomatically or causally according as it is considered in relation to its preceding or succeeding unit; in other words, each unit contains within itself both cause and effect. If, therefore, we regard the series as harmful in its possibilities—e.g., Guy Fawkes standing at one end of the train, the Houses of Parliament, King James, *et ceteri*, at the other end—and we approach with that excellent therapeutic agent, H_2O, moistening grain B, say, then at one and the same moment we cancel the power of that grain to appear whether as symptom or as cause and the potential of the series stands still at B.

In a series such as that selected there is no difficulty in recognising the dynamic relationship of the members severally which compose it, because the series is *homogeneous;* but it is otherwise when the series is *heterogeneous* and the thread of continuity has to be tracked through such startling transformations as we witness when we pursue the antecedents of the ague fit and take note in succession, first, of the germ-bearing and mordant mosquito; next of its feeding ground, the marsh; then of the causes of the marsh—viz., a particular lie of country and quality of soil; again, that these causes themselves became operative either because of an agricultural ignorance which knew not drainage, or of a racial characteristic, inertia, which inhibited knowledge from acting; thus and thus back towards the beginning of things, until we come finally to that *Actus Dei* which first moved, giving them birth. Yet, however difficult the pursuit of causation be, occasioned by such bewildering metamorphoses and juxtapositions, the genetic relationship between each contiguous pair of the heterogeneous series is as absolute and inevitable as in the case of the grains of gunpowder. Reverting, therefore, to the diagram, we may say of every series of connected events, if we wish to arrest its sequence, that there is one therapeutic rule and one only—viz., to reach back as far as possible along the chain of events and there interrupt it. In saying this we are assuming that the sequence is harmful in all its stages. Accordingly we should commit a folly if in such a series, A, B, C, D, E, F, we selected the term F for treatment when A was accessible to us, a folly equalled only by the refusal to treat F because we were unable to get at any one of its antecedents; in so doing we should ignore the fact that F, though the latest term before us, will not be the last if we leave it time to propagate its effects. The treatment of F therefore is prophylactic, in respect of the future.

When shall we recognise that the quest of the *primum mobile* is an idle chase? It lies buried in the recesses of time. When shall we see that the *anterius mobile* is all that we can aim at, and that, failing to reach the remoter terms of the morbid sequence, down even to the antepenultimum or penultimum, the last term, the *proximum mobile*, must engage all our attention and powers? The future will return thanks for the treatment bestowed, though the present refuse recognition, inasmuch as symptomatic treatment at every stage is always causal treatment.

It is necessary to insist upon this since very singular conceptions prevail as to the nature of disease, in evidence of which the following quotation may be cited from Professor Hare's article on "Antipyretics" in Hale White's "Text-book of Pharmacology and Therapeutics," p. 502; the subject is the use of antipyrine in feverish states and we read as follows:—

> Antipyrine, even though its influence be most favourable in a given case, still accomplishes nothing in the way of cure, antipyrine only governs the heat processes whilst the disease ploughs its way onwards to recovery or death; although it may, by quieting restlessness due to fever or to the nervous disorder produced by the disease, render the pathway to recovery more easy but no shorter than if it were not employed.

It is a strange pronouncement; it draws a picture of disease which would divorce it wholly from its manifestations (symptoms). Disease, it would seem, rolls on, like the Car of Juggernaut in its maleficence; this symptom is suppressed or that, it matters not, on it goes ploughing its way "to recovery or death"; though how the evil Thing should ever arrive at health is not apparent. We are told, it is true, that antipyrine may quiet restlessness "due to the fever" and so "render the pathway to recovery more easy but no shorter." One must suppose that the word "easy" means, here, more comfortable, else it were difficult to conceive how the path to health could be rendered smoother without expediting the healthward tendencies. Be this as it may, and, for argument's sake, accepting this minimal rôle for antipyrine, that of bringing comfort, I personally should still prescribe it unless *per contra* anything positively baneful could be urged against it, for to bring ease to *dis*ease, is it not one of the aims of the physician?

But, surely, disease as we know it in the suffering body is composed of symptoms, is their sum and substance; suppress these in their totality and what becomes of it, what significance has the morbific essence for us? If it cannot produce a symptom, it does not touch, it has no hold upon the tissues, and on these terms whether disease roll or plough matters not at all. No, the symptom is a tissue reaction; it is the remonstrance against the insult which the *materies morbi* inflicts, and as the incidence of the insult is rarely if ever restricted to one organ or tissue, so disease is made up of the combined reactions of the organs and tissues throughout the body; it is, in fact, a cluster of symptoms, or, in modern terminology, it is a symptom-complex. If this be a true definition then to say that the suppression of a symptom is without effect upon the course of disease is sheer nonsense, for we have only to pursue the argument and suppose the abolition of symptom after symptom, one by one, to arrive at disease void of all signs of disturbance, a complete non-entity, which is a *reductio ad absurdum*.

We reach the same *impasse* if, regarding the matter in detail, we choose one symptom—the one selected by Professor Hare will serve our purpose, pyrexia. In the passage quoted above it is maintained that the suppression of fever does not affect the course of the disease; this can have one meaning only—namely, that abnormally raised temperature does not affect the tissues harmfully. But if that be so, what then is our opinion of the immediate dangers of hyperpyrexia and what do we think of the cancelling of this symptom by the simplest of all febrifuges, the cold bath? Does this treatment, or does it not, affect the course of the disease—may it not save life on occasion, or failing this, will it not almost certainly prolong life, either result a prime objective of therapy. But if this be true of hyperpyrexia, will it not of necessity hold for pyrexia also, for surely it will not be contended that the harmfulness of pyrexia begins at any arbitrary level qualified by a prefix?

The fact is that we must regard raised temperature (99° F. or anything above this) as directly mischievous, being more or less depressant to the vitality of the tissues, according to its degree; and since treatment has two main objects in view—viz., (1) to reduce the hostile forces of the *materies morbi* to a minimum; and (2) to uphold, or raise to a maximum, the vital powers in their struggle against the enemy—it follows that the removal of an influence depressant to these must immediately and beneficially affect the course of the disease. It is true we may be quite unable to dissociate the ill effects due to the pyrexia, *per se*, from certain other effects for which the toxic agent is responsible, but no clinicist can doubt that raised temperature is hurtful in itself, and therefore by as much as we can reduce the fever, by so much its hurtfulness will be diminished. True, pyrexia is a symptom, but symptoms, we have shown, are causes, and consequently antipyretic treatment, instead of being irrational and ineffective, is in many cases the only rational and effective treatment open to us when we stand face to face with the febrile patient and cannot get at the fever-producing agent.

In theory, then, the use of the antipyretic is not only sanctioned, it is imperative, and accordingly we shall at once, without further parley, proceed to employ it? By no means. Why not? Because the antipyretic, like the toxin, produces other effects besides mere reduction of temperature, and these by-effects may disqualify it. Here comes a really valid objection: the drug may do more harm than good. The *Advocatus Diaboli* has spoken, the Thing, the drug is suspect—*it may do harm* and, moreover, it is sure to taste horrid! What, then, is to be done—nothing? But the man is burning out. A plague upon your houses, optimists, pessimists; word-mongers both! Call in the practical man, call in the empiric, invoke the common sense of Charles the Second, of Royal Society fame, and — try: see what it does, this drug, so reasonable in its concept, so treasonable, perhaps. But stay, you may commit a false step and overthrow? And you perchance a negligence, withholding much-needed succour? Yours will then be a fault of commission. And yours of omission. It is so, and clearly there is nothing for it, since action and inaction may alike prove disastrous, but to make trial tentatively—i.e., cautiously, beginning with doses which we have reason to believe safe, thence to proceed warily, watching effects and ready to hold the hand at the first sign of danger. Here is the safe course, the only course, and advance in the practice of medicine can proceed along these lines alone; moreover, this holds not only for new departures in medicine, the trial of new pharmaceutical products, but also for the administration of drugs of established reputation, since the individual case may not conform to the common run of cases. Our pharmacopœial doses are average doses, they correspond to the collective experience of practitioners, but the individual case may step outside these averages, exhibiting a heightened or a lowered sensitiveness and therefore since experience alone can discover this idiosyncrasy each case becomes an experiment. The science and art of medicine, it all lies here; observation begets theory and theory begets practice, which is but applied theory; but it is in the application of theory that the physician shows his science and his art, first, in the choice of the remedy, next in the observation of its effects, thirdly, in the summing up of the whole situation and making decision. whether, for instance, the advantages which the remedy presents outweigh the disadvantages or not. The sick person furnishes the answer required, observation, as we have learned to observe, telling us in his body, taken in its entirety, and regarded especially as to its nobler parts, whether or no the whole man is advantaged. This is the Hippocratic method—this is the true empiricism.

What has been said concerning the antipyretic is applicable, *mutatis mutandis*, to every form of symptomatic treatment, and we may now leave general considerations and pass on to inquire into the use of a specific antipyretic—viz., cryogenine. Cryogénine, as it was originally called by its discoverers, MM. Lumière and Chevrotier (κρύος, cold), belongs to the benzine group of derivatives; it is sparingly soluble in water and is most conveniently administered in cachet, in doses ranging from 3 to 24 grains (5–7–10 grains will represent a more average dosage for adults). It was first tried clinically in 1902 by MM. Gélibert, Dumarest, and Carrière, these observers working independently. In medicinal doses it seems to have very little action upon the healthy body; Carrière says no toxic action. He records a slight lowering of the body temperature (under 1° F.). In disease Carrière finds that the action is slight upon the temperature of the acute fevers, such as inflammatory throat affections (pharyngo-laryngeal), broncho-pneumonias, pneumonias, pleurisies, measles, scarlet fever, small-pox, and chicken-pox; but, on the other hand, he finds it a most valuable antipyretic in typhoid fever and in phthisis. Dumarest holds that cases of phthisis of the hectic type with secondary infections are the most responsive to cryogenine, and he regards the drug as superior in value to the antipyretics pyramidon, phenacetin, antipyrin, acetanilide, quinine. Gélibert lays stress on the value of the remedy in phthisis. Later observers in 1904 and 1905—Boy, Tessier, Bruneau, Combemale, Boutterville, and Sègre—bring fresh evidence of the antipyretic action of cryogenine in typhoid fever and in phthisis; the last-named, Sègre, adds that in another class of fever, erysipelas with high temperatures, it produced but little effect. For reference to the publications of these observers consult *Merck's Annual Reports* for 1902 and 1907, vols. xvi. and xxi., under the heading Kryogenin; also the *British Medical Journal*, Epitome, vol. i., 1905, pp. 19 and 79.

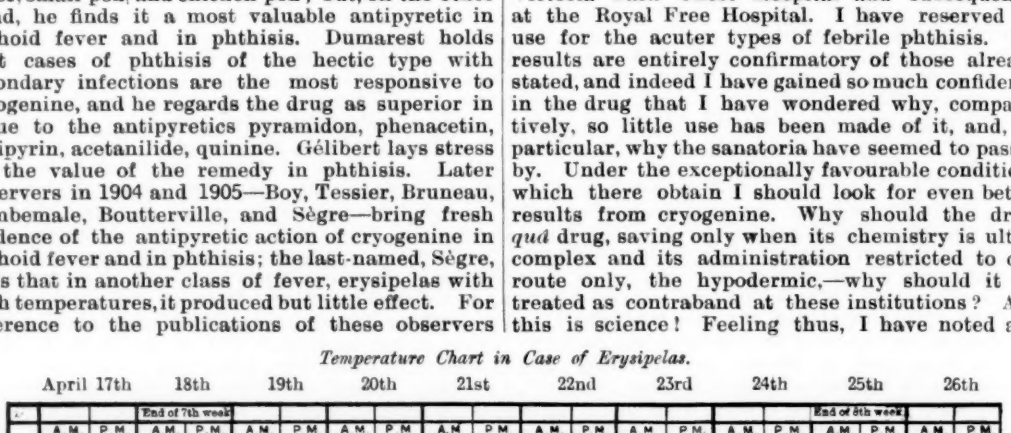
In the 1907 Report of Merck the work of Crespin is referred to; it has this special value that the observer recommends more individualisation of the dosage, counselling, if the tuberculous subject prove refractory to its influence, that the dose be raised, to the extent even of 38 grains (2·5 grm.) in the 24 hours. He holds that the tuberculous are more tolerant of cryogenine than other febrile patients. From the 1907 report onwards up to the present date I find no further reference in Merck to cryogenine (Kryogenin).

In this country the drug seems to have excited little attention; in the St. Bartholomew's Hospital Reports for 1907, Dr. J. Calvert records six cases of phthisis treated by it with excellent results, the febrifuge powers being well shown in the charts; I think it probable they would have been even more striking if the dosage had been larger; it did not exceed 10 grains in 24 hours. Dr. Calvert lays stress, in agreement with previous observers, on the absence of any ill-effects attributable to the remedy; on the contrary, he records that the patients felt better, ate better, and slept better during the administration.

In THE LANCET[1] Dr. J. E. Gordon, medical superintendent of the Devon and Cornwall Sanatorium, gives confirmatory evidence of the influence of cryogenine in phthisis. His dosage did not exceed 5–8 grains twice daily—at noon and at 4 P.M. He records one very marked instance of its value in a case of acute phthisis, the patient losing her fever, gaining 29 pounds, and receiving her discharge back to work. This was one "out of a number of successful cases."

My own experience with cryogenine dates back to before 1906, having employed it first at the Victoria Park Chest Hospital and subsequently at the Royal Free Hospital. I have reserved its use for the acuter types of febrile phthisis. My results are entirely confirmatory of those already stated, and indeed I have gained so much confidence in the drug that I have wondered why, comparatively, so little use has been made of it, and, in particular, why the sanatoria have seemed to pass it by. Under the exceptionally favourable conditions which there obtain I should look for even better results from cryogenine. Why should the drug, *qud* drug, saving only when its chemistry is ultra-complex and its administration restricted to one route only, the hypodermic,—why should it be treated as contraband at these institutions? And this is science! Feeling thus, I have noted and recorded Dr. Gordon's sanatorium findings with particular interest and satisfaction. My dosage of cryogenine has been, in general, 10 to 15 grains, once daily, administered just before the temperature has tended to rise—as a rule, somewhere in the late forenoon.

Temperature Chart in Case of Erysipelas.



C. = Cryogenine.

Of the value of cryogenine in typhoid fever I have had no experience, but if this now rare disease should come my way I should feel tempted to add it in small doses to a routine practice of frequent spongings.

In conclusion, I would refer to a recent case, which, in fact, has been the occasion of this paper. It was a case of erysipelas of unusual duration which I had the opportunity of watching in conjunction with Dr. James A. Davidson, of Hanwell, and later during his absence at the front, with Dr. T. W. M.

[1] THE LANCET, Dec. 18th, 1909, p. 1812.

Steedman, of Hanwell. The disease was of a severe type and of the form styled erysipelas migrans or ambulans; a more appropriate qualification here would have been perambulans, so thoroughly did this infection "travel through, about, or over; pass up and down." The temperature curve was of the heavily remitting or intermitting type; the maxima very seldom lower than 102° and more often ranging between 103° and 104°. In the earlier stages the remitting type prevailed, but from the commencement of the fifth week onwards the character of the pyrexia was predominantly intermittent and attended often with heavy sweats during the intermissions. The total duration of the fever was just over eight weeks. The seventh week showed a decided downward trend of the pyrexial curve, the minimum reached being 101·8°; then, however, the fever showed renewed activity, mounting up to 103·4°, 103·2°, and 104° on successive days; at this point we began the administration of cryogenine in doses of 10 to 15 grains per diem; on the last day of the seven days' course a final dose of 5 grains was given. The effect of the treatment is best seen on the accompanying chart, and if we take into consideration the fact that when the drug was commenced the fever was again upon the upgrade and had reverted in type and intensity to the pyrexia of the fifth and sixth weeks, it will be difficult to escape the conclusion that the antipyretic action was due to the new factor introduced. It will be seen that the effect of the first dose of 10 grains was to delay the rise of the fever some six to eight hours, it was not sufficient to reduce the swing appreciably. On the following day an additional dose at 4 P.M. produced a much more pronounced effect. On the fifth and sixth days it seemed likely that the doses might have to be increased still further, when, at last, the final subsidence came. From April 27th onwards the temperature became absolutely normal or slightly subnormal; it was taken for some weeks longer. In the giving of the medicine the endeavour was made to anticipate the rise of temperature; the times of the dosage were therefore not quite fixed.

Sègre, as already stated, gives it as his experience that cryogenine has but little power over the fever of erysipelas; in the light of this case this statement must be reconsidered, though it is quite possible that in the earlier and more sthenic stages of erysipelas as in the cases of shorter duration, which are the rule, Sègre's experience may hold.[2] At any rate the present case suggests that the field of usefulness of cryogenine may be extended outside the limits of tuberculous and enteric infections, and perhaps it may be found of special use in those cases of lingering pyrexia which may follow upon the acuter stages of an infection, and continue, more or less indefinitely, to the confusion of prognosis and the apprehension of all concerned: of such kind is the so-called after-fever, with which we used to be not unfamiliar in typhoid, also the pyrexia in certain forms of influenza.

If cryogenine be employed in such or similar cases the general well-being of the patient during the administration will at all times be the criterion we shall rely on to guide us, whether to maintain or advance the dose or to discontinue. In the above recorded case the patient was most carefully watched from this point of view.

Wimpole-street, W.

[2] Since the above was written I am indebted to Dr. Louisa Woodcock for the report of a striking success with cryogenine in a case of erysipelas recently under care at the Endell-street Military Hospital. The effect on the temperature and spread of the erysipelas was unmistakable.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A DEPILATORY FOR PREPARING THE SCALP AND OTHER AREA FOR OPERATIONS AT THE FRONT.

BY ALEXANDER DON, F.R.C.S. EDIN.,
MAJOR, R.A.M.C. (T.).

THOSE of us who are working at the front are often faced with the problem of how to clean a large area like the scalp in a short time. I can recommend the following as worth a trial, and I believe it is being fairly extensively used at present by those at the base who know the method.

The hair is first cut with a scissors or a clipper, and is next washed to loosen the clotted hair. The depilatory, which is a mixture of sod. sulphide, cold water starch, and fine unslaked lime, is then mixed to a consistency of thick soup and is immediately well rubbed into the whole scalp. In seven to ten minutes, which is about the time one takes out here to prepare oneself for a head operation, the whole can be taken off with the back of a spatula, leaving the scalp quite bare and with no cuts like after many a shave. No further cleaning is required, but the operation area may be further prepared to choice. Such a method ensures that the tiny wound of entrance of a rifle bullet will not be overlooked, as often happens when shaving the area of exit alone is resorted to, no other injury being noticed on account of blood or hair or both. The preparation is difficult to make up in such a way as to ensure its keeping, but I have always been able to get it from Messrs. Paterson and Sons, Aberdeen, quickly and in good condition.

NECROSIS OF HALF A PATELLA.

BY E. MANSEL SYMPSON, M.D., B.C. CANTAB., M.R.C.S.,
MAJOR, R.A.M.C. (T.), 4TH NORTHERN GENERAL HOSPITAL; HONORARY SURGEON, LINCOLN COUNTY HOSPITAL.

A MAN, aged 73, was sent into the County Hospital to be under my care on March 20th, 1915, by Captain F. E. Withers, R.A.M.C. (T.), of Horncastle, who is now on active service with the 12th Stationary Hospital in France. The patient had bruised his right patella some months before by falling on it and it had gradually ulcerated and exposed necrosed bone. On March 25th I removed this, which was practically the whole of the anterior surface of the patella, about the size and thickness of a five-shilling piece. It had been separated from the posterior portion by a layer of granulations. This surface healed over very slowly at first, but much more quickly after the treatment with Wright's solution, of which I have been making much use at the 4th Northern General Hospital. He went home cured on July 12th. The vertical splitting of the patella and the subsequent death of the anterior portion are, as far as I can make out, unique.

Lincoln.

THE BUTE COTTAGE HOSPITAL, ABERDARE.—It is regrettable that this hospital, which is the only one in a town of 50,000 inhabitants, has reached an acute financial crisis, owing to the withdrawal, on account of the heavy war expenditure, of a large number of annual subscriptions. The hospital has been in existence for 34 years.

Reviews and Notices of Books.

Operative Gynæcology.

BY HARRY STURGEON CROSSEN, M.D., F.A.C.S., Associate in Gynæcology, Washington University Medical School; Gynæcologist to St. Luke's and the Barnes Hospitals, St. Louis. With 770 illustrations. London: Henry Kimpton. 1915. Pp. 670. Price 31*s.* 6*d.* net.

As the author tells us in the preface, the object of this volume is to deal with the operative side of gynæcological treatment. In order to have space in a single volume for the satisfactory consideration of the operative treatment of diseases of the genital tract, all operations on adjacent organs, such as the urinary and intestinal tracts, have been omitted.

The writer's aim has been not to say dogmatically that in the case of a certain disease one definite line of treatment is to be followed, but rather to show how the operator must be guided by the pathological condition met with in any particular case. He gives several methods of operating and a short criticism of them, so as to indicate the type of patient in which special operations are most likely to be a success. As an example of the arrangement of this work, the opening chapters (which deal with retrodisplacement of the uterus) may be taken. To start with, there is a short historical summary of various procedures in chronological order. Then follows a classification of the operative measures into (*a*) inguinal, (*b*) abdominal, (*c*) vaginal. The inguinal operations are divided into three groups according to whether the peritoneum is or is not opened and other considerations; the abdominal and vaginal operations present seven groups. The technique of the different methods is then given and the directions are made clear by a very full series of illustrations. Next, the indications for operation are considered, according to whether the uterus is movable, partly movable, or fixed. Finally, the choice of operative method is discussed, according to whether a future pregnancy is or is not possible. It will be seen, therefore, that this work really gives anyone who is about to treat a patient surgically an opportunity to review the various methods that are open to him and to decide which method is most suited to the particular patient that the operator has to deal with.

It is to the credit of Dr. Crossen that the book has not degenerated into mere enumeration of methods or a maze of classifications. It is quite easy reading, although the author manages to get a large number of facts into a small space. The illustrations are good, and their value is increased by the short description that is placed beneath each. They are all original, their number is high, and their production must have involved much labour, but their high standard of excellence repays the care given to them. A certain amount of space is taken up by the inclusion of matter that does not need consideration in a book of this kind and which might with advantage be omitted from subsequent editions. As an example may be given the inclusion of a complete list of all reported cases where a foreign body has been left in the abdomen, and also the short accounts of the legal proceedings that followed some of these. The author gives in detail the method that he devised to prevent a sponge being left in the abdomen. The method in question is simply the extended use of rolls of gauze, such as have been used in many London hospitals and elsewhere for many years. Some clinical histories of patients under the author's care are given, but such details are not very instructive to the average reader, and the space might be better occupied, though we admit it is not excessive.

Taken as a whole the book fulfils its purpose and should be popular with the practitioner who is called upon to do major surgical operations.

War Surgery.

By EDMOND DELORME, Médecin Inspecteur-Général de l'Armée. Translated by H. DE MÉRIC, Surgeon to Inpatients, French Hospital, London. Illustrated. London: H. K. Lewis. 1915. Pp. 248. Price 5*s.* net.

THIS is a very timely book, and we welcome the appearance of an English version of it. The author, from his position, has had exceptional opportunities of appreciating the modern surgery of war, and in this little volume he has concentrated his knowledge on the points in which war surgery differs from the surgery of civil life. The book is well written; the descriptions are clear and concise. The translation has been excellently done, and Mr. de Méric is to be congratulated on introducing to English readers a valuable little work.

Text-book of Medical Jurisprudence and Toxicology.

By JOHN GLAISTER, M.D. Glasg., D.P.H. Camb., F.R.S.E., Professor of Forensic Medicine and Public Health in the University of Glasgow. Third edition. Edinburgh: E. and J. Livingstone. 1915. Pp. 857. Price 15*s.*

Dr. Glaister's work on medical jurisprudence is now so well known and its excellence is so generally appreciated that no words are necessary from us as regards its nature and scope.

The present edition has been carefully prepared and brought fully up to date. Dr. Glaister has re-arranged some chapters, abbreviated others, added to others as the subjects required, without altering the due proportion and perspective of the many important matters which had to be considered. In the first chapter some remarks have been introduced in reference to the General Medical Council, its duties and its statutory powers, together with a full account of its penal resolutions. Students will do well to pay attention to the points here described, for some of the examining boards attribute importance to knowledge of medical registration and the laws relating to it. The observations on the employment of unqualified assistants, on the illegal assumption of medical titles, and on certain aspects of the Dentists Act, 1878, are well worthy of attention. One of the features of the book, and one that adds much interest to it, is the large number of illustrative cases which are quoted. Certain of the more recent medico-legal cases have been introduced; for instance, the Crippen case is referred to at some length; the identity of the human remains which were found in the house that had been occupied by the murderer is discussed, and in the portion of the work devoted to toxicology a good account is given of the evidence which was offered as to the cause of death in the victim.

In the section devoted to the consideration of criminal abortion a full account is given of a case tried at the High Court of Justiciary in Edinburgh in 1913. The accused had given himself up for performing an illegal operation on a woman who had died. At the necropsy it was found that the deceased was possessed of a double uterus and that

the wall of the organ in which a breach was found was abnormally thin. On the evidence given for the defence the prisoner was found not guilty.

We can cordially recommend this work to students studying for examinations and also to medical practitioners as a useful and reliable work of reference. Members of the legal profession will also find it useful in preparing their briefs.

Emergencies in Medical Practice: The Pathology and Treatment of Morbid Conditions that may Suddenly Endanger Life.

By Sanitätsrat Dr. R. LENZMANN, of Duisberg. Translated from the third German edition by R. E. S. KROHN, M.D. London: John Bale, Sons, and Danielsson. 1915. Pp. xvi.–578. Price 21*s.* net.

THE books dealing with the treatment of surgical emergencies are many in number. The emergencies that may confront the general practitioner, on the other hand, have received comparatively little attention from writers in recent years. Indeed, such attention as they have received has not always led to the production of books that would be of immediate utility to the practitioner. Dr. Lenzmann has done excellent service by bringing together all the dangerous emergencies of medical practice, giving a good and up-to-date account of their pathology, and adding full accounts of the various lines of treatment and relief indicated in each. To judge by internal evidence, Dr. Lenzmann would seem to be a general practitioner with a penchant for gynæcology and surgery; in fact, the only emergencies he leaves untouched appear to be those that may arise in connexion with diseases of the ears and the eyes.

The book is divided into seven sections. The first of these, extending to 112 pages, deals with the diagnosis and treatment of sudden loss of consciousness and convulsions. The second section, 122 pages long, is given to emergencies arising in connexion with diseases of the respiratory apparatus—hæmorrhage, narrowing of the respiratory tube, and pulmonary and pleural diseases. The third section is short and gives an account of cardiac emergencies; the fourth describes the emergencies of disease of the alimentary tract—hæmatemesis, diarrhœa and vomiting, intestinal obstruction, hernia, peritonitis, and the like, and Dr. Lenzmann expresses himself as all in favour of immediate operation in abdominal cases, speaking generally. The fifth section describes the morbid conditions suddenly endangering life caused by diseases of the urinary system, with excellent discussions of the pathology of anuria and uræmia. The next section is concerned with emergencies arising in pregnancy, labour, and child-bed, and covers 90 pages. The seventh and last section, 60 pages in length, describes the diagnosis and treatment of cases of poisoning, including poisoning by antitoxic serums; this is perhaps the least excellent part of the book, for the author has not kept abreast with modern pharmacology.

The book is clearly written and the translator has done his work well. The contents are well arranged and the directions as to diagnosis and treatment, both medical and surgical, leave nothing to be desired. The book may be warmly recommended to the attention of all practitioners. We understand from the *Journal of the Royal Naval Medical Service* that neither the author nor any other enemy profits by the sale of this work, as the copyright has been sold.

MISCELLANEOUS VOLUMES.

Two little books for the laity on the important question of the care and upbringing of infants and children deserve notice. The first, on the care and management of infants and children (*The Health of the Child: a Manual for Mothers and Nurses.* By O. HILDESHEIM, M.D. London: Methuen and Co., Limited. 1915. Pp. 111. Price 1*s.* net), contains much good advice within a very small compass. It reflects accurately the teaching followed in the majority of well-conducted schools for mothers, and should prove useful to middle-class mothers who are excluded from the advantages offered by these institutions and who, from considerations of expense, cannot constantly command the services of a medical man.——The main feature of *What Every Mother should Know about Her Infants and Young Children*, by CHARLES GILMORE KERLY, M.D. (New York: Paul B. Hoebner. 1915. Pp. 107. Price $0.35), is that each page is interleaved with a blank sheet in which the mother is intended to write her own notes. The advice offered appears to us to be sound, and in conformity with the general rules of practice in America. The number of feeds by night as well as by day are more frequent than those now usually employed in this country; and the continued use of the flannel binder until the child is 6 months old does not appear to us to be conducive to its comfort or health.

The small type in which many school books are printed cannot but have an injurious effect upon eyesight, and we welcome the appearance of *Arithmetic, Complete with Answers*, by C. GODFREY, M.V.O., M.A., Headmaster of the Royal Naval College, Osborne, and E. A. PRICE, B.A., Assistant Master (Cambridge: At the University Press. Price 4*s.* Pp. xiv.–468), which conforms to the standards laid down for various ages by the British Association Committee on the Influence of Schoolbooks upon Eyesight. In this text-book bold type is used for the work which would be expected from pupils between the ages of 9–12 and smaller type, though larger than that used in many text-books, for pupils beyond these ages. The subject-matter is well arranged.

Very good advice is given in the beginning of *Sick Room Cookery Simplified, with Suggestions for Diet*, by MABEL BAKER (London: G. Bell and Sons, Limited. 1914. Pp. 152), that the patient should not be consulted as to what he should eat. Nothing is more to the point than that dainty things should be placed before anyone ill without their knowing beforehand if the food is to be really beneficial. Food values are very simply and plainly put forth in the book. Good and simple recipes abound, and those catering for the sick can hardly go wrong if they are followed. Many books of this kind call for expensive materials which make it impossible for the everyday cook to follow and carry out the directions, but the recipes given here are not beyond the resources of even the most simple cook, and the results would be wholesome, nourishing, and appetising.

In THE LANCET of Dec. 19th, 1914 (p. 1449), we briefly noticed a little pamphlet by Mr. F. W. Fitzsimons, F.Z.S., F.R.M.S., director of the Port Elizabeth Museum, South Africa, on "The House Fly as a Carrier of Disease and Death," the free distribution of thousands of copies of which was part of a campaign conducted by the author for taking active protective measures against this universal pest. In *The House Fly, a Slayer of Men* (London: Longmans, Green, and Co. 1915. Pp. 90. Price 1*s.* net), Mr. Fitzsimons presents at a price within the reach of nearly all a more detailed account of the life-history and filthy habits of the various forms of house-fly, with practical and explicit instructions as to the means of combating its insidious and death-dealing activities. It is a useful little book that every householder might with advantage make himself acquainted with.

Report of the Prehistoric Society of East Anglia on the Excavations at Grime's Graves, Weeting, Norfolk. March to May, 1914 (London: H. K. Lewis. 1915. With 30 plates and 86 figures. Pp. 245. Price 5*s.* net.) is a valuable report on the excavations made at Grime's Graves, and the editor, Mr. W. G. Clarke, who is the honorary secretary of the society, is to be congratulated on the excellent arrangement of the various sections into which the report is divided. A brief history of Grime's Graves and the association of the name of "Grim" in other parts of the country, is followed by some account of previous work on the site and a comparison between similar prehistoric mining areas in this country and

on the continent of Europe. The results obtained by excavation in different pits are set out in detail, the concluding chapters being devoted to human remains, antler picks, flint instruments, pottery, worked bones and chalk, mammalian and other bones, mollusca, charcoal and soils, with a chapter on the flint-mines of Sweden. The human finds, which have been presented to the Royal College of Surgeons of England, may belong to either the Late Palæolithic or the Neolithic, or even to a later time, and consist of the remains of two individuals, the calvaria of a man's skull, and parts of the skeleton of a child. These are minutely described by Professor Arthur Keith, F.R.S.

JOURNALS AND MAGAZINES.

Annals of Tropical Medicine and Parasitology. Vol. IX., No. 2.—Dr. Anton Breinl, Director of the Australian Institute of Tropical Medicine, contributes in this number of the *Annals* an interesting paper on Gangosa in New Guinea and its Etiology. This disfiguring disease, otherwise known as rhinopharyngitis mutilans, is of limited geographical distribution, being mainly confined, according to our present information, to the Pacific Islands; it is a blastomycosis due to a specific parasite to which is given the name of cryptococcus mutilans. In its clinical manifestations it resembles in some particulars tertiary syphilis. Dr. Breinl illustrates his paper with a number of photographs of cases, in many of which the morbid process has caused extensive destruction of the face. It is of interest to note that the large majority of the cases observed were women, only a comparatively small number of men being infected. Some experiments on monkeys were carried out by inoculation from open sores, but notwithstanding prolonged observation none of the animals showed any lesions Dr. Breinl also supplies another contribution on the Occurrence and Prevalence of Diseases in British New Guinea, and in this paper he embodies the scientific results of two journeys to the coastal belt of that colony undertaken for the purpose of mapping out the incidence and geographical distribution of tropical diseases among the natives. This article is illustrated by a number of photographs and a map.—Dr. Henry Priestley, of the same Institute, writes on Theileria Tachyglossi (*n.sp.*), a blood parasite of tachyglossus aculeatus which resembles very closely theileria parva of East Coast fever; it was discovered in the blood of an echidna from the neighbourhood of Townsville, Queensland. This paper is illustrated by a coloured plate.—A report upon an Investigation into the Causes of the Prevalence of Enteric Fever in Kingston, Jamaica, with special reference to the question of unrecognised carriers, is furnished by Dr. H. Harold Scott, Government bacteriologist, and pathologist to the General Hospital, Kingston. This investigator found that 3 per cent. of persons dying from some other affection than typhoid fever and from whom no history had been obtained that they had previously suffered from that disease, were harbouring bacillus typhosus in their gall-bladders at the time of their death. A table of cases along with ten charts are appended to Dr. Scott's report.—The last contribution in this number is by Dr. H. B. Fantham, lecturer on parasitology in the Liverpool School of Tropical Medicine, who discusses Insect Flagellates and the Evolution of Disease, with remarks on the importance of comparative methods in the study of protozoology. Attention is called, among other things, to the significance of the herpetomonad stage of leishmania, of the recent announcements that such stages occur in man, and of the presence of natural herpetomonads in other vertebrates—mice, for example. It is also recalled that insect herpetomonads can invade and live in plant tissues. Dr. Fantham also summarises and discusses the experiments on the introduction into different vertebrates of various species of herpetomonads and crithidia parasitic in insects, by Laveran and Franchini, using mammals, and by Fantham and Porter, using both warm- and cold-blooded vertebrates. It is inferred that the various leishmaniases are due to a herpetomonad of invertebrates which, under different conditions of environment, produces pathogenic effects in very varying degrees in different vertebrates, from zero in the mice described by Dutton and Todd, to high mortality as in Indian kala-azar, and probably zero again in cold-blooded hosts. A human reservoir of leishmaniasis may occur in some places, while warm- and cold-blooded vertebrates may also function at the same time. It is highly probable that the so-called cultural herpetomonad stages of trypanosomes were really cultures of scanty herpetomonad infections co-existing with trypanosome infection.

Parasitology. Edited by GEORGE H. F. NUTTALL, F.R.S., assisted by EDWARD HINDLE, Ph.D. Vol. VIII. No. 1. June, 1915. Cambridge University Press. Price 10*s.* net. Yearly subscription £1 10*s.*—The opening article on Ganymedes Cratere, *n.g. et s.*, by W. Harold Leigh-Sharpe, comprises the description of a new marine leech captured in the Isles of Orkney. The paper is illustrated by six text figures, showing the body-form and various organs of this parasite.—A Note on the Variability in Size of Amblyomma Hebraeum, Koch, by L. E. Robinson, is of considerable interest in showing the marked effect of external conditions on the size of this cattle tick. The writer has examined ticks collected from a region in South Africa where dipping had been practised for some time previously. These were found to be very much smaller and, moreover, showed greater variability in size than ticks living under normal conditions.—Is Leucocytozoon Anatis the Cause of a New Disease in Ducks? by A. B. Wickware. This article contains an account of what seems to be a new malady among ducks, which broke out at a poultry farm in the vicinity of Ottawa, Ontario. The disease was very fatal, the mortality being about 65 to 70 per cent. A leucocytozoon was present in very large numbers in the blood of all birds affected, and in the absence of any other organisms to which a pathogenic rôle could be ascribed, it is suggested that this parasite may be the causative agent of the disease. Transmission experiments were unsuccessful.—The Trematode Parasites of North Queensland: III., Parasites of Fishes, by William Nicoll, is a further instalment of the author's valuable monograph on the trematodes of North Queensland. The present part deals with the parasites of Australian fishes, and contains the descriptions of 11 new species belonging to no less than ten genera, of which six are new. The paper is accompanied by excellent illustrations of all the new species.—A New Species of Tapeworm from a Parakeet, Brotogerys tirica, by F. J. Meggitt, consists of a detailed description, accompanied by plates and text figures, of a new species of tapeworm from Brazil.—Experimental Drug Treatment of East Coast Fever of Cattle, by the editor, comprises the records of 18 experimental cases of this disease which have been treated with various drugs. The following were tried with negative results: trypan-blue, Congo red, tryposafrol, creosote and oleum copaivæ, arsacetin, soamin, "606," emetine hydrochloride, mercury salicylate, mercury succinimide, quinine bihydrochloride and hydrochloride, ethylhydrocupreine, ammonium fluoride, potassium iodide, sodium salicylate, calcium lactate, and nuclein. All the animals died, and in no case was the course of the disease perceptibly affected.—Mallophaga from Apteryx and their Significance, with a Note on the Genus Rallicola, by Launcelot Harrison, contains the description of three new species belonging to two new sub-genera. From the relationship of these parasites the author concludes that Apteryx is nearer akin to the Ralli than to any other living birds.—The Respiratory System of Mallophaga, by Launcelot Harrison, contains a detailed description of the tracheal system of Myrsidea cucullaris, followed by a discussion of this system in a large variety of forms. The paper is accompanied by excellent text figures showing details of the respiratory system in some of the species considered.—On the Natural Occurrence of Herpetomonads (Leptomonads) in Mice, by H. B. Fantham and Annie Porter, comprises a description of the occurrence of what is probably Herpetomonas pattoni in the blood of mice. This flagellate is a natural or specific parasite of fleas (especially rat fleas), and apparently it can adapt itself to life in the blood of mice. Probably the flagellates occurring in fleas can live in the blood and internal organs of rats and mice, dogs, and man.

DEATH OF A MAIDSTONE PRACTITIONER.—Mr. Edward Ground, M.D. Cantab., L.R.C.P. Lond., M.R.C.S., surgeon to the West Kent General Hospital, died at his residence recently at the age of 61. He was educated at King's College, London, of which he was an Associate, and at Cambridge, where he graduated M.B. in 1881.

THE LANCET.

LONDON: SATURDAY, AUGUST 14, 1915.

The Medical Profession and the National Register.

THE work of distributing the forms in connexion with the National Register has been going on steadily during the week, and many localities were supplied in very good time with the papers—and, indeed, this was fore-seeing, as to-morrow, Sunday, August 15th, is the official day by which they have to be filled up. It is anticipated that the returns will be collected in the course of the next three or four days, which will be a remarkably prompt performance if it can be achieved. For to take stock of the personnel of the United Kingdom is a stiff proposition, as an American would say, and there is no doubt that it could not have been accomplished without a splendid amount of volunteer service. Of course, the distribution and collection of the forms is only the first half of the work, and probably the easier half. All the forms will have to be analysed as soon as they are collected, and the results of analysis will have to be arranged according to some scheme or code before any action can be taken upon the figures. Those who have experience in the sifting of the material obtained by replies to any pre-arranged formula know well that, even in the case of an infinitely smaller inquiry than such a one as is now being conducted under the National Registration Act, extraction from the replies of their real significance is very difficult, and the placing of the true results in such a form that practical action can be taken upon the replies is more arduous still. Where the returns concern many millions the task becomes so formidable a one that we may be quite sure that no Government would have embarked upon it unless on the assurance that the effort was necessary. The grouping of replies from vast numbers may not necessarily present greater problems, but the mere mechanical labour brings complications of its own. However, we are sure that the results of National Registration will well repay the expenditure of time, money, and labour lavished upon it. Our national stock-taking has been made the subject of some ridicule in Germany as a sudden improvisation, but it seems reasonable to believe that the true feeling in Germany, where the value of self-knowledge has been appreciated, is one of apprehension. Our National Register may be got together in haste, and may fall in exactness below the level of the *cadres* compiled by the nations who have adopted the principles of compulsory military service, but the fact that the trouble of making such a record has been faced, moreover with the unanimous approval of all classes, is a proof to Germany that we intend to spare no effort, and to neglect no precaution. And there is every reason to believe that it will be a full and valuable Register. Those who are supplying the details may be depended upon, we are sure, to fill up the returns with willingness, while it is a matter of common knowledge, where compulsory military service prevails, that exactitude is only obtained by considerable stringency and supervision.

We may be perfectly certain that the question of medical service with the navy and army will receive early attention as a result of National Registration, and it is reasonable to suppose that the work of the War Emergency Committee for England, Wales, and Ireland will be used in coöperation. The medical profession is a special class of itself, and its members, though varying very much in individual equipment and predilection, are standardised by training and examinations of a homogeneous pattern. The work that medicine can do in behalf either of the fighting forces or the civilian population is well defined. Again, the difficulties with regard to the employment of the medical profession to the best advantage for the nation are to some extent concrete. It is not possible to manufacture doctors like shells; they cannot be turned out hurriedly because they are wanted. We do not say that some concentration of medical education for military purposes might not be contrived; professional military training is being abbreviated in this way with success, and an analogous process might be applied to medicine. But even so it would be useless for the conduct of this war. The supply that is available is the supply that has to be made to go round. Given, then, so many doctors, we have to see whether they are being used to the best advantage by the nation and also in a fair manner, the greatest strain being thrown upon those who can best meet it, and the work as far as possible allotted to those for whom it is most suitable. The sittings of the War Emergency Committee for England, Wales, and Ireland have commenced, and it is clear that much of the work as far as the organisation of medicine is concerned, which will have to be discharged by those who analyse the returns for the National Register, will be covered for the medical profession by this committee. The committee will work to a great extent on the model of the Scottish Medical Service Emergency Committee, and will attempt to ascertain the circumstances of medica men in various localities so as to find out where doctors still remain in civilian practice whose services could be more usefully employed from a national point of view elsewhere. In particular it will be necessary to arrive at some solution of the age question, for it is believed that offers of whole time service from the medical profession have been made in large numbers by men who have reached what the War Office considers, and often for good reason, as too advanced an age, while there have not been the same number of younger volunteers. Where this has occurred it may to a certain extent be revealed by the National Register

while the War Emergency Committee will also take careful notice of this situation. The question, again, of the employment of tuberculosis officers, junior school medical officers, and junior asylum assistants is one which the War Emergency Committee can go thoroughly into, and their conclusions, compared with the results of National Registration, ought to produce some exact knowledge as to how far it is safe to deplete our civilian medical resources and our sanitary and educational staffs.

Whenever a census of the population is taken it is natural that different people should want to seize the opportunity of obtaining massed statistics on the points in which they are particularly interested. The expense of sending out, getting in, and analysing the returns will be incurred anyhow, and it is argued that the more that can be obtained for the money the better. The forms for National Registration have, however, been kept designedly of the simplest kind, so that the questions can all be answered from personal knowledge without any reservations. They ask for information as to sex, age, nationality, occupation, and responsibility in the matter of dependants (children or other), and the Registrar-General has issued a clear paper of instructions which should keep the percentage of error very low indeed. In the last space in the form there is room for displaying individual judgment, as an indication is sought from each signatory as to the direction in which national service might be undertaken. For medical men the filling of this space will seldom present difficulty. Certain of our profession have high expert skill outside the limits of their calling—we can think at once of doctors who are accomplished artists, mechanicians, electricians, and agriculturists; but as a rule the medical services of a doctor will be so valuable that any other accomplishment must take a secondary place.

Crime and Legal Insanity.

THE scientific study of insanity as a disease must result in the acquirement of much information as to its causes, its prevention, and its possible cure, and in saying this we are reminded immediately of a distressing phase in which more definite knowledge is very urgently needed. A person charged with a criminal offence is deemed by the law to be responsible for his act, if it is proved that he committed it, unless it is shown on his behalf that at the time he was deprived of his reason to an extent which the law recognises as excusing him. The law and the procedure, which varies in different circumstances, are fairly familiar to those interested professionally, most of whom would, we believe, acknowledge that with whatever certainty it may be possible to instruct a jury, the practical results obtained are by no means certain, consistent, and satisfactory.

The problems here involved were recently reported upon by a subcommittee of the medico-political committee of the British Medical Association, assisted by representatives of the Medico-Legal Society, the Medico-Psychological Association, the Bar Council, and the Incorporated Law Society. The subcommittee considered various aspects of the trial of prisoners whose sanity is called in question and it expressed opinions which may be studied with interest. The report commences with the definition of legal responsibility for crime, which has not varied much since MACNAUGHTEN'S case called marked attention to the subject in 1843, and then proceeds to deal with the difference of procedure which obtains in the following two situations:—(1) when a prisoner is found to be unfit to plead, and consequently is not tried or found by a jury to have committed the act alleged against him; and (2) when a prisoner is tried as a sane person although the defence is raised on his behalf that, at all events, when he committed the crime for which he is indicted he was in such a mental condition that he ought not to be punished for it. Particular attention is called in this connexion to the recent decision of the Court of Criminal Appeal that a verdict of "guilty but insane" does not constitute a conviction, so that the person in whose case such a verdict has been recorded can obtain no relief from the Court of Criminal Appeal. The subcommittee is of opinion "that this condition of affairs appears to be hard on the individuals concerned, and it is possible that some alteration in procedure might be productive of better results." It is pointed out in a supplemental report by Mr. ROLAND BURROWS and Dr. JAMES SCOTT that the same reason prevents an appeal from a verdict that a prisoner is fit to plead, or that he is not fit to plead, and the matter is undeniably one which claims attention. The point must have escaped notice when the Act which constituted the Court of Criminal Appeal was passed. A recommendation is briefly made in the report to which we would add all the support in our power, bearing in mind the probability that scientific research must give us improved power to deal with mental derangement and the insane. The subcommittee found "that it is desirable that medical officers of prisons should have had experience in the diagnosis and treatment of insanity." We gather from the supplemental report that neither Mr. BURROWS nor Dr. SCOTT are dissatisfied with the present qualifications of the medical officers of prisons, whose evidence, they say, "is practically always accepted." We feel, however, confident that evidence which is practically always accepted, and which, in the case of many prisoners of the humbler class, constitutes all the evidence available, should be that of men who have qualified themselves to give it by special training pursued to the fullest reasonable extent. Such equipment would be of service in an appreciable proportion of the cases which daily present themselves in prison practice, and the testimony of a witness based upon special training could not fail to further the ends of justice.

In the same connexion it may be remarked that a due recognition of the importance of psychiatric training as a qualification for prison work would probably have indirect results of a very desirable character in bringing about a more careful scrutiny of the mental condition of accused persons. At present such scrutiny appears to be confined in a very large measure to the case of persons charged with capital offences. Thus, taking the latest available figures, those given in the Judicial Statistics for 1912, we find that amongst criminal lunatics received into asylums during that year the existence of insanity had been recognised prior to trial in over 78 per cent. of the patients who had committed murder, but in only 20 per cent. of those who had been guilty of other crimes. Even when full allowance has been made for the many qualifying considerations which have to be borne in mind in estimating the significance of these figures, there is no reason to doubt that the insanity must have preceded and caused the criminal acts in about the same proportion of the non-homicidal as of the homicidal cases; and if this be so, it is certainly a regrettable circumstance that so considerable a number of mental invalids should have been tried and condemned as sane and responsible delinquents. And it has to be remembered that the miscarriage of justice in a case of this sort is not only unfair to the insane offender but is also deplorable from the point of view of public safety, inasmuch as it may, and, if the mental disorder escapes detection in prison, it generally does, involve the liberation after a term of imprisonment of an individual of dangerous anti-social proclivities. It would, of course, be a formidable administrative task to organise a complete and efficient system for the psychiatric examination of all accused persons before they are brought to trial, but it would assuredly be both possible and desirable to institute such a system when the offences charged are known to be frequently associated with mental disease or abnormality. It is notorious, for instance, that sexual offences and such crimes as arson are very often the acts of insane persons, so often, in fact, that their imputation should at once create a suspicion as to the offender's soundness of mind, and a skilled inquiry directed to this point ought to be made, and its result ought to be reported to the court in every instance where a charge of this nature has to be tried. In the absence of some such procedure judicial errors can hardly fail to arise, and there is unfortunately no doubt that they are tolerably frequent. As proof of this we need only refer to the Judicial Statistics quoted above, from which we learn, for instance, that in every case the criminal lunatics guilty of arson who were sent to asylums during the year 1912 had been tried and sentenced without recognition of their mental disorders. While such incidents are recorded without comment in official publications it is difficult to believe that the legal and administrative authorities who have to do with matters of this sort have yet learned to appreciate the full importance of psychiatry in relation to crime.

Annotations.

"Ne quid nimis."

STATE-AIDED MATERNITY AND CHILD-WELFARE SCHEMES.

THE Local Government Board has issued a Memorandum, dated July 29th, to county councils and sanitary authorities in explanation of the provisions of the Notification of Births (Extension) Act, 1915. The new Act, which amends the old adoptive measure, now renders obligatory the notification to the medical officer of health of all births which occur after the expiration of the twenty-eighth week of pregnancy. The notification must be made within 36 hours of birth, and applies to still-births as well as to living, and if made to a local sanitary authority must be duplicated to the county medical officer with as little delay as possible. The Memorandum explains that the Local Government Board is desirous that all the statutory powers vested in sanitary authorities and county councils under Public Health or other Acts to promote the care of mothers and young children should be exercised to the full. It is especially pointed out that councils of counties are in a more advantageous position than local sanitary authorities in small rural areas to initiate and administer such welfare centres, since they also constitute the authority for the supervision of midwives and the conduct of tuberculosis schemes. Under such centralised authority overlapping and the multiplication of domiciliary visits may be best avoided. In the development of new schemes to effect the objects in view it is suggested that care should be taken to obviate the dislocation of existing institutions, the supplanting of voluntary agencies, and the alienation of local medical practitioners. The Memorandum further explains that the Government will agree to make grants of public moneys up to half the total expenditure for all schemes approved by the Local Government Board, and it is pointed out that the Act provides that the powers of a local authority in pursuance of such schemes may be exercised through a committee, which may include among its members persons who are not elected representatives of such a statutory body, although it is desirable that such direct representatives should hold a majority on the committee. There can be but little doubt that the issue of this Memorandum will stimulate the progress of work in behalf of maternity and child-welfare through the United Kingdom, more especially as it is pointed out by the Local Government Board that encouragement will be given to the initiation of incomplete schemes where a perfected programme cannot be immediately organised.

HIBERNATION AND THE PITUITARY BODY.

"NOT only has the phenomenon of sleep offered a problem which has not been solved to the satisfaction of physiologists, but still less satisfactory have been the explanations accounting for the prolonged dormant periods to which certain species of animals are subject, and of which the hibernation of winter latitudes and æstivation of tropical and arid regions are the most notable examples." In these words Professor Harvey Cushing and Dr. Emil Goetsch introduce the report of some observations they have made on this matter in the *Journal of*

Experimental Medicine (1915, vol. xxii.). The prevailing view is that the lethargy is due to low external temperature and diminished food-supply, but experimental confirmation is not very convincing. Observations on the cells in the nervous system and upon the respiratory quotient also fail to throw light on the cause of hibernation. It is important to remember that besides the lethargy there is a preliminary storage of fat, and during the somnolence a retarded tissue combustion, as shown by lowered body temperature, bradycardia, lowered blood pressure, relative peristaltic inactivity, insensitiveness to painful or emotional stimuli, and slowed respiration. It is known that overactivity of certain glands of internal secretion is capable of accelerating tissue metabolism. It is suggested that a seasonal physiological inactivity on the part of these glandular structures may well account for the phenomenon of hibernation. An animal in which the habit of hibernation exists is the North American marmot or "wood-chuck," and the ductless glands of seven of these animals were examined during and after the hibernating period. It was found that though more or less definite evidences of a pluriglandular insufficiency are apparent when the waking is contrasted with the dormant state, nevertheless the most striking histological changes in the latter state occur in the anterior lobe of the pituitary gland. There is a loss of the characteristic cellular topography, a shrinkage of both the nuclear and protoplasmic substance of the cells, and a complete loss of the typical differential staining qualities of the granular content to acid and basic dyes. There was also some suggestive evidence to indicate that when the animal emerges from the dormant state there is marked activity of the reproductive organs, and this is possibly due to the renewed or reactivated pars anterior. Clinical observation of the effect of pituitary gland upon the body shows that with lessened activity of the gland many symptoms — drowsiness, subnormal temperature, impotence—arise which are strikingly comparable to the hibernating state. Man may even in his normal state show a condition comparable to hibernation; in certain parts of Russia the peasants, during the winter scarcity of food, pass weeks at a time in a somnolent state, rousing themselves once a day for a scant meal. Seasonal variation in the activity of the ductless glands is not limited to the pituitary gland, as it is particularly evidenced in the glands directly concerned with reproduction—glands which have been shown to have a very close functional inter-relationship with the pituitary body. Whilst changes in this body are probably responsible for the phenomena observed, these changes are themselves due to extracorporeal factors relating to food-supply.

ANIMAL PARASITES AMONG TROOPS.

THE same conditions that favour infective disease in soldiers on active service doubtless contribute towards increasing the number of parasitic diseases and the carriers of animal parasites. It is not possible, however, in war time to put into practice all the usual prophylactic measures which could ensure the troops against such infection, and the administration of most anthelmintic remedies is often attended by many inconveniences which are undesirable. Professor Giulio Alessandrini, of Rome,[1] claims to have discovered in chloroform a panacea for all forms of parasitic infection, whether external or internal. This drug offers many and marked advantages in the treatment of intestinal parasites, since it kills the parent organisms and prevents the development of the ova, and thus also acts as a prophylactic. Combined with castor oil, which is in itself an excellent purgative, it requires no special preparation of the patient; it can be administered in a single dose, does not cause any local or general disturbance either immediate or subsequent, and is, moreover, perfectly well tolerated and not nauseous. It may be given in quantities of 3 to 4 grammes dissolved in olive or castor oil in a single dose, and is thoroughly efficacious against the ankylostoma as well as against trichocephalus, ascarides, and oxiurides. The same drug may be employed as an efficient remedy against cutaneous parasites. It immediately kills the adult insects and prevents the development of their eggs. Beyond a transient burning sensation on the more delicate parts of the skin it causes no local irritation, but rather has an analgesic action and soothes the most intense pruritus. It is, moreover, easy of application, and does not call for any subsidiary preparation of the patient, such as hot baths and sterilisation of garments. Professor Alessandrini advises the use of 20 to 30 per cent. chloroform in a fatty base.

[1] Il Policlinico, Via del Tritone 46, Rome.

HEDONAL AS AN ANÆSTHETIC.

Methyl-propyl-carbinol urethane, more commonly known under the name hedonal, a German patent, has hardly sustained the reputation which Professor Federoff, of Petrograd, won for it by his trials of the drug in Russian clinics. Federoff in 1911 reported a series of 530 cases collected from three Russian clinics, and in this series no death was directly attributed to hedonal. Following the observations made by Dreser and Jeremitsch, Mr. C. M. Page, of St. Thomas's Hospital, introduced hedonal into surgical anæsthesia in this country. He pointed out that the constant, as opposed to the intermittent, infusion method obviated some of the inconveniences and dangers described by continental observers. Mr. Page's first series of 75 cases were free from any serious accident; however, subsequent experience has shown that the drug possesses certain inherent dangers, and these may be considered in the light of our present knowledge. Urethane and its derivatives, like barbitonum (veronal), are very powerful hypnotics, producing coma, cyanosis, respiratory failure and circulatory collapse as intensive effects. The marked feature about hedonal, as, indeed, of all its congeners, is the persistence and profundity of unconsciousness it produces and the impossibility of its rapid elimination after being introduced directly into the blood stream. In most of the cases recorded in this country Mr. Page's method has been adopted. He described this in the Proceedings of the Royal Society of Medicine in 1912.[1] His apparatus is applicable to the infusion of hedonal (0·75 per cent.) in normal saline into the internal saphenous vein. The solution is kept at 105° to 110° F., as a higher temperature leads to local thrombosis in the vein. Sir Berkeley Moynihan has devised a somewhat similar apparatus which has modifications adapted for infusion into the arm veins. The importance of the rate of flow and

[1] Proceedings of the Royal Society of Medicine, vol. v., part 1, Section of Anæsthetics, and THE LANCET, May 11th, 1912, p. 1258.

actual quantity of hedonal introduced has been demonstrated by the experience of about 1000 cases. Dr. Z. Mennell insists that running in 100 c.c. of the solution each minute, as was the practice at one time, is dangerous, and he restricts the flow to 100 c.c. in two or even three minutes. Further, the plan of giving hedonal or other drug by the mouth before the infusion is now regarded as unnecessary and even dangerous. The depth of narcosis is another important factor making for safety or peril, and we now realise how extremely difficult it is to estimate this, and how still more difficult it is to gauge the degree of the increase of the drug's action after the cessation of the infusion. Mr. Page asserts that the cases which have ended fatally, as well as those in which serious complications have appeared, are the result of over-dosage, and concluded from his own experience that the anæsthetic was safe in patients up to middle age provided that there is no gross pulmonary or cardiac lesion. Even so, the fact remains that in the absence of the usual signs of anæsthesia, and these do not arise in hedonalisation, it is extremely hard to estimate the dose requisite for any given patient. Dr. Mennell assures us[2] "there should be a brisk skin reflex," by which he means that when the skin is incised a toe or the leg should move in response to the trauma. This lightness of narcosis presumably cannot be hoped for towards the end of the operation and certainly not subsequently to the withdrawal of peripheral stimulation incident to surgical manipulation. Indeed, the condition brought about by hedonal is rather that of an opium narcosis than that of volatile agents such as chloroform. Under hedonal, although perception of painful sensations is lost, reflex movements persist even when the abdominal musculature is affirmed to be relaxed. We have no complete record of the fatalities which have occurred in connexion with this drug. Professor Burkhardt (Nürnberg), speaking in the Section of Anæsthetics in the International Congress of 1913, mentioned that the use of hedonal had been replaced on the continent by isoprale owing to the dangers incident to the former. However, neither he nor Professor Kümmel, who took part in the same discussion, gave specific cases of death resulting from the respiratory paralysis which they averred was a grave and ever-present danger of hedonal infusion. In this country Mr. Barrington-Ward has reported a death, that of a girl, aged 8, which occurred 30 minutes after the commencement of the infusion subsequent to the completion of the operation. Another fatality was recorded in these columns[3] by Mr. Harold Upcott and Mr. H. Loft Evans. In this case respiratory paralysis occurred without any warning except a gradual diminution in the volume of breathing. Dr. G. A. H. Barton's case of death took place at the Throat Hospital, Golden-square, and was subsequent to an operation for double frontal sinusitis. During the prolonged coma following the infusion blood trickled into the air passages and asphyxiated the patient. Here again no sign except some cyanosis was present to indicate the imminence of danger. A somewhat similar catastrophe is mentioned by Dr. Mennell; in this case death resulted from blood entering the air passages after removal of a tongue. That grave complications arise in hedonal anæsthesia has been shown by various writers. Mr. J. F. Dobson[4] and Dr. Rawdon A. Veale[5] have put on record their experience with hedonal cases in the Leeds General Infirmary. The list, which includes cases of pulmonary, pyæmic, and cerebral complications ending fatally, reveals the difficulty which arises in appraising the share taken by the condition of the patient at the time of the operation, by surgery and by anæsthesia in bringing about the fatal result. Dr. Veale offers a most calm and dispassionate record of such complications he, as a physician, has observed, and we are bound to admit they are formidable. Mr. H. de L. Crawford described before the Royal Academy of Medicine of Ireland his experience of some 30 cases, and among them was an instance of acute pulmonary œdema. The consensus of opinion at the present time about hedonal as an anæsthetic appears to be that its employment should be restricted to cranial and spinal surgery, while it should be avoided for all operations on or about the air passages. Further, very small doses are indicated, and the rate of flow of the infusing solution should be as slow as is consistent with the avoidance of clotting in the veins, a complication at once not uncommon and dangerous. In another column will be found a request from "Eureka" for information concerning any fatalities from the use of hedonal. We shall be happy to help "Eureka," and other medical men, by publishing any information which may be sent.

[2] Transactions of the Medical Society of London, vol. xxxvi., p. 34.
[3] THE LANCET, 1912, vol. i., p. 1568.
[4] Transactions of the Medical Society of London, op. cit., p. 46.

"A NEW ANTISEPTIC."

UNDER the above heading in the daily papers last week it was announced that a communication had been made to the Academy of Science in Paris referring to the discovery of a new antiseptic for the treatment of wounds. Some accounts stated that the new antiseptic was chlorinated lime (calcium hypochlorite), to which boric acid had been added, and subsequently chalk to neutralise the acidity of the mixture. Later it was stated that the new antiseptic was prepared by adding to a solution of sodium hypochlorite boric acid until the mixture was neutral. In both cases it seems fairly obvious that the net result would be a solution of hypochlorous acid, a well-known and powerful antiseptic, probably more efficacious than chlorine itself. But the claims to novelty for this antiseptic are ill-founded. It is a good many years since we announced from THE LANCET laboratory that the activity of ordinary bleaching powder was greatly increased by passing through it carbonic acid gas which liberates hypochlorous acid. Any other acid—e.g., boric acid—will do the same thing. In 1894 we investigated the Hermite process for the sterilisation of sewage, which consisted in passing a current of electricity through sea-water, which was demonstrated to produce hypochlorous acid. The germicidal power of this electrolytic fluid was shown to be more than equal to corrosive sublimate; it was found to possess the advantage that it did not become inert by forming insoluble compounds with albumins, while it could be very cheaply produced. We pointed out at the same time that a practically identical fluid, except for an excess of common salt, could be produced by passing carbonic acid gas through a solution of bleaching powder. Later it was found that by adding bicarbonate of soda in excess to bleaching powder solution a fluid was obtained containing free hypochlorous acid, although the product possessed acid-neutralising properties due to

[5] Brit. Med. Jour., 1912, vol. ii., p. 347.

the excess of bicarbonate of soda present. In all these cases, therefore, the "new antiseptic" is an old and familiar friend, hypochlorous acid. It is doubtful whether bleaching powder or really neutral calcium hypochlorite has a strong germicidal value. It is not until its hypochlorous acid is set free that it becomes a powerful antiseptic, and in the methods just described certain additions are made to the bleaching powder—e.g., bicarbonate of soda or boric acid—which effect the liberation of this weak and unstable acid. When bicarbonate of soda is used the advantage is gained that all free and corrosive alkali is removed, and yet the mixture possesses acid-neutralising properties. The bleaching properties of such a mixture are very intense, and this intensity is no doubt on all fours with germicidal power. It is well known that one of the difficulties of using bleaching powder for bleaching purposes is that its caustic properties due to lime are apt to destroy the fabric. When, however, it is employed with an excess of bicarbonate of soda a bland, non-corrosive fluid results which, while equally effective as a bleach, is free from the destructive properties described. "A new antiseptic" therefore amounts to this: that bleaching powder or sodium hypochlorite has been primarily employed, but that the lime or soda has been neutralised by the addition of boric acid, which would liberate hypochlorous acid, which possesses only a feeble acid character. It can hardly be supposed that the boric acid contributes to the antiseptic value, since it would be present as borate of lime or of soda, as the case may be; its addition merely means the liberation of hypochlorous acid. Most probably the addition of an excess of bicarbonate of soda to bleaching powder solution would give equally gratifying results in the antiseptic treatment of wounds. Some valuable experimental observations on the antiseptic action of hypochlorous acid and its application to wound treatment were recorded in the *British Medical Journal* on July 24th. The observations, undertaken at the request of the Medical Research Committee, were made by Professor Lorrain Smith, Professor Murray Drennan, Dr. Theodore Rettie, and Dr. William Campbell, and the result was to confirm the conclusion of various investigators that hypochlorous acid is the most powerful antiseptic known.

THE PEMPHIGOID ERUPTIONS.

THIS group of skin lesions has lately attracted some attention, and in the *British Journal of Dermatology* for June Dr. J. M. H. Macleod sums up our present knowledge on the subject. His remarks are based upon a study of about 100 cases. Having access, as he had, for the purpose of collection to many sources, the comparatively small number of cases betokens the rarity of this class of case. It is important, however, to observe that under the above term he excludes cases of pemphigus neonatorum and pemphigus acutus, since both are septic infections. There are three cardinal features of the pemphigoid eruptions: (1) multiformity in the eruptions; (2) herpetiform grouping; and (3) intense subjective symptoms. Multiformity is due to a number of causes—variations in the type of initial lesion, differences in the stage of evolution of individual lesions, and so on. The types of initial lesions met with are the familiar prurigo-like papules, papulo-vesicles, bullæ, or urticarial patches. They may be level with the surface or definitely raised; there may be a tendency to circinate figures with rings of vesicles at the border. The vesicles vary in size from a pin's head to a lentil. Sooner or later in all cases they are surrounded by an inflammatory halo. The vesicles are often grouped in clusters of six or eight; generally they remain discrete. The bullæ are usually about the size of a small bean and tense, the contents being at first sterile, but later opaque and purulent. Subjective symptoms are of markedly paroxysmal character, and consist of pricking, itching, burning, or actual neuralgic pain; they vary in type and intensity. General health is often good. Mucous membranes are not usually implicated. Eosinophilia in the blood is a well-recognised sign, though not so constant as was once supposed. The urine may contain indican, generally coincident with the outbreak. The course of the condition is invariably chronic. Of its pathology little is known. The changes in the corium would appear to be primary, those in the epidermis secondary. It may occur at any age, and is equally common in males and females. Pregnancy is the most definite determining cause, and it may recur with successive pregnancies. As to its causation little is known. The most prevalent theory is that it is an intoxication and caused by the circulation in the blood of some endogenous toxin. It has also been suggested that the nervous system may be related in some way to the eruption. Treatment is unsatisfactory. Arsenic has been most used; it appears, however, to have only a controlling and not a curative effect, and for this effect to be exerted it is necessary to reach the limit of toleration. Locally, soothing remedies are helpful.

NERVOUS MANIFESTATIONS DUE TO THE WIND OF EXPLOSIVES.

THE numerous cases observed in the war of injuries to the nervous system due to shell explosions have given rise to considerable discussion as to their nature and mode of production. In a leading article on March 27th, entitled "Shell Explosions and the Special Senses," we discussed one aspect of the question. At a meeting of the Académie de Médecine de Paris M. Paul Ravaut dealt with another, and emphasised the part played by "the wind of the explosion." The possibility of injury due to "the wind of the bullet" has been long recognised, but the much more injurious "wind of the explosion" does not seem to have received due attention and has been neglected for the diagnosis of hysteria. M. Ravaut's conviction that the phenomena are due to an organic cause originated in a case which he observed in November, 1914. After a shell explosion a man was carried to the ambulance station suffering from paraplegia, with anæsthesia reaching as high as the umbilicus and retention of urine. These symptoms immediately followed the explosion of a big shell near him. There was no external wound, but lumbar puncture yielded bloody cerebro-spinal fluid and catheterism bloody urine. In March, 1915, a man was taken to the ambulance station suffering from left hemiplegia with anæsthesia of the same side. He could not speak. These symptoms followed the explosion of a bomb at a distance of a metre. There was no external wound. On the following day he had violent headache and an attack of convulsions. Lumbar puncture yielded clear fluid containing a much increased amount of albumin. The symptoms disappeared in a few days. Lumbar puncture was performed thrice and showed a progressive diminution in the amount of albumin.

After 12 days he was discharged with some rigidity of the left leg, but without modification of reflexes. In March, 1915, a man was taken to the ambulance station almost comatose after explosion of a big shell in the hut where he rested. On the following day he was conscious and complained of violent headache and deafness in the left ear. Lumbar puncture yielded clear fluid containing a slightly increased quantity of albumin. Two days later there remained only complete deafness in the left ear and the cerebro-spinal fluid was normal. A soldier was brought to the ambulance station who had been in a state of obnubilation since the explosion of a mine near his trench. He walked with difficulty, staggering along, and spoke only a few incoherent words, of which he repeated the last syllables. He was very excited and started at each sound of cannon. He pointed to his head and appeared to be in much pain. The cerebro-spinal fluid was clear, but contained a slightly increased quantity of albumin. He recovered in 10 days, and the cerebro-spinal fluid became normal. M. Ravaut claimed that in these cases the condition of the cerebro-spinal fluid showed that the symptoms were due to organic lesions of the nervous system. The presence of blood or albumin for a greater or less period represented a gamut of reactions in relation with the intensity or extent of the lesion. Moreover, there was complete parallelism between the evolution of the symptoms and the condition of the fluid. It would be contradictory to expect the human organism to be unaffected by violent explosions which produce such an effect on surrounding objects, animate and inanimate. M. Ravaut thinks that the changes of pressure produced by explosions cause hæmorrhages in the nervous system, which were proved to exist in the first case. In a case reported to the Société de Chirurgie by M. Sencert, a man died soon after a shell exploded near him. There was no external wound, but the necropsy showed rupture of the lungs and intrapleural and gastric hæmorrhage. Similarly, hæmorrhages in connexion with the nervous and urinary systems were produced in the first case. Such injuries M. Ravaut called "internal wounds" by contrecoup. He considered them more frequent in the fighting line than manifestations of hysteria.

THE LATE MADAME OSTERBERG: APPOINTMENT OF TRUSTEES FOR THE SWEDISH PHYSICAL TRAINING COLLEGE.

SOME 18 months ago Madame Bergman Osterberg, the principal and founder of the Swedish Physical Training College at Dartford, desired to relinquish the active direction of the work of her college. In so doing she wished in the national interest to secure the continuation of the work which had been so successfully established and developed. With this purpose in view she generously offered, with the full approval and sympathy of her husband, Dr. Edwin Osterberg, of Stockholm, to transfer her college to the Government. For reasons in no way connected with the college it was found impracticable to accept the offer, and Madame Osterberg was advised to create a trust. Almost the last act before her death was to sign the trust deed, vesting her property in a trust with the object of carrying on the college in the national interest on its existing lines and maintaining the traditions already established. The trustees appointed are Dr. Christopher Addison, M.P., Mr. Waldorf Astor, M.P., Sir George Newman, M.D., the Marchioness of Salisbury, and Lord Shaw of Dunfermline. While the ultimate control of the institution rests with the trustees, the general management and working of the institution will be placed in the hands of an executive committee of ten persons representative of various official and other bodies concerned with the physical education of women.

THE INFLUENCE OF ELECTRIC CURRENTS AND ELECTROLYTES ON THE SPERMATOZOA OF VARIOUS MARINE ORGANISMS.

SOME interesting biological facts in connexion with the above subject have been observed by Mr. James Gray at Plymouth, and are recorded in the latest number of the *Quarterly Journal of Microscopical Science*. He found that the spermatozoa of Luidia and asterias glacialis in sea-water were quite motionless and incapable of fertilising ripe eggs of the same species, but on the addition of a few drops of decinormal caustic soda active movement was set up, eggs from the same female as before were quickly fertilised, and large numbers of healthy larvæ were obtained from the culture. Acidulated sea-water, on the other hand, tends to arrest the movement of the spermatozoa, as was shown by experiments on the sperm of echinus acutus. In pure sea-water this sperm exhibited active movements for at least two hours, whereas in a mixture of 5 cubic centimetres of sea-water with 3 drops of decinormal hydrochloric acid the active movement was greatly reduced after four minutes and was very slow after 14 minutes. If spermatozoa are suspended in an isotonic solution of cane-sugar their activity is lost, but if a trace of alkali is present they again become motile. When an electric current is passed through a neutral suspension of spermatozoa in a solution of cane-sugar, the sperm travels rapidly to the positive pole, where it accumulates; round the negative pole, however, the spermatozoa become exceedingly active, apparently on account of the liberation of alkali, which can be detected by means of an indicator in the solution. If, however, spermatozoa are suspended in a faintly acid solution of cane-sugar, no migration takes place to the positive pole, and no "activation" was observed at the negative pole; in such a suspension the electric current causes the sperm to form a retiform aggregation throughout the solution. From these facts Mr. Gray infers that motile spermatozoa possess a negative charge on their surface, and that this charge is lost in the presence of free hydrogen ions. In the remaining portion of his communication he describes the aggregation of spermatozoa by simple trivalent kations, the reagent employed being a salt of cerium.

SWEAT-GLAND TUMOURS OF THE VULVA.

WITH the exception of carcinoma and cysts of Bartholin's gland tumours of the vulva are comparatively rare. Fibromata, angiomata, sarcomata, and lipomata are well known, but it is only in recent years that attention has been drawn to new growths that originate in the sweat glands. These are usually small cystic masses occurring in the labia majora and fixed to the skin. Dr. G. W. Outerbridge, in the *American Journal of Obstetrics* of July, 1915, has collected a dozen published cases, including one under his own care, which he gives in detail and illustrates with seven microphotographs. Microscopically the growth consists of a complicated adenomatous or papillary structure made

up of innumerable irregular acini and tubules. The acini are sometimes lined by a double layer of cells, the inner row being tall, cylindrical, and the outer being shorter, more irregular cells. Outside the latter there is often a layer of elastic tissue. Owing to their peculiar histological appearances these tumours may at first sight appear to be malignant, but the recorded cases show that the majority are simple in nature, although a recurrence of the tumour was recorded in 2 of the 12 cases collected. It is suggested that the term "hidradenoma" might well be given to this growth.

THE SALE OF FOOD AND DRUGS ACTS DEFEATED BY THE MILK WARRANTY DEFENCE.

THE warranty clause in the Sale of Food and Drugs Acts, applied at all events to milk, should we think, in the light of recent disclosures, be cancelled. This clause discharges the defendant from the prosecution if he is able to prove to the satisfaction of the justices or court that he had purchased the article in question as the same in nature, substance, and quality as that demanded of him, and with a written warranty to that effect, and that he had no reason to believe at the time when he sold it that the article was otherwise, and that he sold it in the same state as when he purchased it. Dr. J. King-Warry, the medical officer of health for the borough of Hackney, in a recent report states that in London nearly 12 per cent. of the persons charged with offences under these Acts have escaped recently quite freely under what is known as the "warranty defence." In his own borough during the last two and a half years warranty defences were set up in no less than 47 cases. Of these, 3 summonses are pending, and of the remaining 44 the defence was entirely successful in 38 cases. In other words, milk adulterated with water up to 22, 13, and 17 per cent. respectively was sold to the poor people of the East End, and all within the law, whilst milk impoverished and with 23 per cent. of its cream deficient can also be sold to the children of the poorer quarters with impunity. The chief sanitary inspector (Mr. John Foot), in a report to the Public Health Committee, states that men with strings of convictions to their credit can, and do, escape further conviction as a mere matter of course. Time after time they come up and plead the same warranty. In one case a tradesman, after several previous convictions, pleaded a warranty defence so successfully as to escape on five different occasions. Fifteen of the warranties pleaded purported to be given by one dairy company. "It becomes quite easy," adds Mr. Foot, "to understand why the milk-supply of this borough has recently become so much worse than it has been at any time during the last 20 years and why our percentage of adulterated samples has gone up rapidly from the normal of 11 to something like 33 per cent." This report discloses a scandalous state of affairs which should as soon as possible be put a stop to by a prompt amendment of the warranty clause. Otherwise in regard to milk the administration of the Act remains a farce. Milk, in particular, is so easily tampered with at so many stages from its point of production to the time of its delivery that it seems hopeless to trace where the act of adulteration was committed. The warranty clause does not appear to be open to this unwarranted abuse in regard to other articles of food. The warranty clause in respect of milk should, it seems to us, be no longer a foundation of defence. The unscrupulous clearly laugh at it, and appear again and again without receiving the punishment which is their due.

THE DIAGNOSIS OF MEDIASTINITIS.

THE number of cases of mediastinitis recorded is so limited that every one is of interest. Dr. C. P. Howard has contributed to the *Johns Hopkins Hospital Bulletin* an important paper on the diagnosis of mediastinitis, in which he reports two cases. In one the patient was a machinist, aged 28 years, who had suffered from the usual diseases of childhood, but denied having contracted syphilis. At the age of 21 years he first noticed cyanosis and swelling of the face and neck. Soon afterwards there were profuse hæmoptysis without cough, and palpitation and intermission of the pulse. Cardiac pain and dyspnœa followed. At the age of 22 years he first noticed dilated veins on the chest. On examination he was stout and healthy-looking. The conjunctivæ were suffused and the eyes were slightly prominent. The face, lips, ears, and finger-tips were cyanosed, and the latter were clubbed. The facies was rendered more striking by enlargement of the parotid glands, and the lacrymal glands were also enlarged. The thyroid gland could not be felt, but the whole neck seemed boggy and œdematous and the veins were engorged. Over the chest was a network of venules, as well as many large tortuous veins. These appeared to anastomose with the abdominal superficial veins. The veins of the arms were prominent. Cardiac dullness began at the upper border of the third rib and extended 2 cm. to the right and 10 cm. to the left of the mid-sternum. An area of dullness corresponding to the anterior mediastinum was percussed over the manubrium. At the apex the heart sounds were rather distant, and at the base the pulmonic second sound was accentuated, while the aortic was barely audible. The Wassermann reaction was negative. A skiagram showed a dense shadow in the mediastinum. Mediastinitis usually follows acute rheumatic pericarditis, but may follow fibrinous pleurisy, some other acute condition of the chest, tuberculosis, syphilis, or acute infections, such as scarlet fever or measles. Post mortem there will be more or less increase in the fibrous tissue of the mediastinum, causing adhesion of the viscera to one another or to the chest wall. There may also be such pericardial and pleural adhesions that the whole of the thoracic contents are fused together. Compression of the large vessels, particularly the veins, is a frequent result. In several cases the vena cava superior has been occluded by thrombosis at the point of constriction. The symptoms are chiefly cardiac—dyspnœa, cyanosis, and dropsy. Dyspnœa is usually present only on exertion, except when there are pericardial adhesions and subsequent dilatation of the heart. The cyanosis and œdema often produce a startling picture. Not only may the features be discoloured and bloated and the face swollen, but the eyes may be prominent and staring, and even the conjunctivæ may be injected, suffused, or œdematous. The neck may be enlarged and tumid-looking. Often the most striking feature is distension of the superficial veins of the neck, chest, and even of the face and upper limbs, with a compensatory circulation indicated by the tortuous epigastric veins. Ascites is apt to develop before general anasarca,

and is due to chronic peritonitis from venous congestion or hepatic cirrhosis. Pain behind the sternum has been noticed in some cases. Symptoms of pressure on the œsophagus or trachea are rare. Percussion may yield a dull note over the manubrium and in the interscapular region. On auscultation an important sign appears, which has been described by Perez—a rough, creaking, to-and-fro friction sound over the manubrium when the arms are moved upwards and downwards.

THE Central Committee for National Patriotic Organizations, through its chairman Mr. Henry Cust, has sent a letter to the press thanking the prominent citizens, the public, and the press for their support at the successful meetings held in London at the Guildhall and London Opera House, and in many distant parts of the world. These influential meetings expressing the national attitude in regard to the war have been free to the public, but heavy expenses of organisation and equipment have been met by the committee, which depends solely upon voluntary subscriptions. The committee, of which the honorary president is the Prime Minister and the vice-presidents the Earl of Rosebery and the Right Hon. A. J. Balfour, M.P., has much other work in hand of a patriotic and economic nature, but is urgently in need of funds for the work. Subscriptions of any amount should be sent to the treasurer of the committee at 62, Charing Cross, London, S.W.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE WEEK'S SUBSCRIPTIONS.

THE outstanding feature of the week's subscriptions is the fine contribution from the Canadian Committee. The generosity of our colonies, which has been so marked a feature in the growth of the Fund, is further shown in subscriptions from Newfoundland and Cape Colony.

	£	s.	d.
Canadian Committee (per Dr. J. Gibb Wishart, Hon. Treas.) (6th donation, total £2227 3s. 11d.)	800	0	0
Dr. F. de Havilland Hall (5th donation, total £10)	1	17	0
Col. Chas. Ross Pearse, I.M.S.	1	1	0
Cape Colony District Surgeons' Association (per Dr. W. Darley Hartley)	20	9	0
Dr. Hill Aitken	0	7	6
Newfoundland Medical Men (per Dr. H. Rendell, Registrar, Newfoundland Medical Board)—Drs. McKendrick, Macpherson, Duncan, Rendell, Fraser, R. Forbes, C. Forbes, H. A. Giovannetti, Pritchard, Scully, Burden, Jones, A. R. Anderson, O'Connell, Brehm, Freebairn, Hogan, Mackay, Cowperthwaite, Mitchell, Stafford, Parsons, J. J. Smith, Cron, Chisholm, Carnell, Donahue, A. MacDonald, W. Roberts, M. C. Roberts, Jamieson, S. S. Smith, Fitzgerald, LeVisconte, Parker, McLeod, G. N. Murphy, Mr. J. McFarlan	36	7	8
Mr. Allan Gray	1	0	0
Dr. A. D. Clark	1	1	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Ltd.

THE APPEAL FOR SURGICAL INSTRUMENTS.

The Master of the Society of Apothecaries of London begs to acknowledge the receipt of surgical instruments kindly contributed by the following donors since the publication of the last list;—

Dr. Prosser White, Standishgate, Wigan; Anonymous, Merthyr; Miss H. C. Boulland, Leeds; Dr. F. W. Collinson, Preston.

MEDICINE AND THE LAW.

Women and Veterinary Surgery.

AT a recent meeting of the council of the Royal College of Veterinary Surgeons an interesting discussion arose out of a letter which had been received from the registrar of the University of Liverpool asking whether, in the event of women attending the necessary courses in veterinary subjects in the University of Liverpool, the council of the College would be prepared to admit such candidates to their examinations, and, in the event of their passing, to issue to them licences to practise. The council resolved to reply that it was advised that it did not possess the power to grant diplomas of membership to women, after the council's solicitor, Mr. Thatcher, had been invited by a member to give his reasons for the advice which he had tendered to the effect indicated. Mr. Thatcher referred to Section 1 of the Interpretation Act, 1889, to the effect that in any Act of Parliament passed since 1850 any words of masculine meaning shall import the feminine unless there is some reason to the contrary, and explained that it had been laid down that in such matters as that under discussion usage and long precedent must be taken into consideration. Otherwise, in charters and Acts of Parliament the words used generally cover either sex, as, for example, "persons," "students," and the Latin "scholæ." Turning to parallel cases, he informed the council that in 1865 the Society of Apothecaries gave their diploma to a woman and afterwards claimed to have the right to admit women to their examinations. They, however, seemed to have had doubts as to the legality of this, for they obtained the passing of an Act of Parliament in 1875 giving to them, or confirming to them, the right which they claimed to possess. The University of Edinburgh, deriving its authority from a charter of 1588, in which the word "scholarum" occurs, passed regulations in 1869 for the admission of women to education and degrees in medicine, and when certain professors declined to carry out these regulations, a woman, desiring to take advantage of them, brought an action to compel the professors to supply the necessary education for her benefit. The Court of Session thereupon decided that, in spite of the language of the charter, there was no power to admit women to the medical profession because to do so would be contrary to old usage and precedent. In 1876 the Medical Qualifications Act gave all bodies having power to admit to the medical profession power to do so without distinction of sexes (but did not give women the right to insist upon such admission), thus settling the question so far as it concerned medicine. In the legal profession the matter came before the courts recently, in 1914, in the case of Bebb *v.* the Incorporated Law Society, on the application of a woman to be admitted as a solicitor. In that case Mr. Justice Joyce held that the foundation of the common law was usage and precedent, and that these were against the contention of plaintiff, the Court of Appeal afterwards unanimously confirming this decision. The Royal College of Veterinary Surgeons, it was pointed out by Mr. Thatcher, derived its powers and rights from a charter granted in 1844, the Royal Veterinary College was founded in 1791, the Dick College in 1823, and the Glasgow College in 1863. The first-named had never admitted any woman to practise, and the three latter bodies had not admitted any woman as a student. Their usage was not of great antiquity but was unbroken, although the question had been raised and afterwards dropped in the case of a woman educated at the New Veterinary College, Edinburgh, who sought examination in 1897. In the discussion that followed reference was made to the fact that in our modern universities courses of instruction and degrees are open to men and women without distinction, and to the degree of B.Sc. in Veterinary Science granted by the University of London. It was pointed out, however, that this was not a diploma and gave no right to one, or to use any name, title, or designation implying that its holder was qualified to practise as a veterinary surgeon. Mr. Thatcher summarised the situation in this respect by saying that in his opinion there was a distinction between a woman taking a degree which shows that she possesses certain knowledge and a woman taking a diploma which entitles her to practise. The parallel of the legal profession applied here, there being

nothing to prevent a woman from taking a degree in law, although this would not give her the right to practise as a barrister or a solicitor.

Gambling in Life Policies.

The fact that persons holding policies of insurance upon the lives of others have sometimes endeavoured to secure their personal profit by shortening the lives of the assured persons by neglect or more active means, adds importance to observations recently made in court by Mr. Justice Scrutton. The claim in the case upon which he commented was for the return of certain premiums on a policy of life insurance on the ground that they had been obtained by fraud, the learned judge giving judgment for the defendants on the ground that the policy was prohibited by law, the plaintiff having no insurable interest in the life concerned. No costs were allowed, the judge not being satisfied as to the conduct of the defendants. Apart from the question of possible crime referred to above, which did not enter into the case before Mr. Justice Scrutton, gambling upon lives is undoubtedly an objectionable form of speculation, and the temptation to indulge in it when associations formed for the purpose of insurance lend themselves to the transaction may be judged of by the facts stated in court. Mr. Justice Scrutton described the plaintiff as the nominal licensee of a public-house, and stated that he had lost count of the number of people upon whose lives she had held policies, but they included her daughter, two of her brothers, her husband's brother, her father, her mother, her husband's uncle, her little boy, and the mother of her husband's first wife. In the case before him and in two other instances the persons insured were not related to her. He found it difficult to believe that persons presumed to know the law could legally enter into an illegal transaction and then invoke the aid of the courts to rectify their position. He compared the case to an imaginary one of a person seeking by an action at law to recover money paid over a bet, on the ground that he had been induced to make the bet by fraud.

THE NATIONAL INSURANCE ACT.

Hospitals and Maternity Benefit at Glasgow.

AT a conference held recently in the Royal Maternity and Women's Hospital, Glasgow, an important discussion took place, having as its subject the position of maternity hospitals in relation to insured patients and the Approved Societies. Representatives of the societies and others interested in the question took part in the debate. The chairman, Dr. J. C. McVail, dwelt upon the importance of the work done in the maternity hospitals, having special regard to the loss of life caused by the war and the necessity for bringing into the world a race of healthy children. Maternity benefit, he said, could be paid "in cash or otherwise," and agreements might be made between the societies and the hospitals whereby a proportion of the maternity benefit might go to the hospital treating the case. As all patients were helped and cared for alike, whatever society they belonged to, it was right that there should be a uniform agreement with the societies to be adopted by all of them. Dr. R. Jardine, in giving details of the work done by the Royal Maternity and Women's Hospital, said that of 127 cases treated in it during July 41 were normal and 86 were abnormal, and he expressed a doubt whether any hospital in the world could show such a proportion of abnormality. He believed that there was a greater proportion of difficult midwifery in Glasgow than in any other city. All the speakers were in favour of the proposition that it was desirable that Approved Societies with members in Glasgow and its district should enter into a uniform agreement to pay a fixed proportion of the maternity benefit of their members treated in the hospitals to the institutions in which they received treatment.

Insurance Committees in the West of England.

At the last meeting of the Exeter Insurance Committee it was stated that "the committee gratefully appreciates all the work being ungrudgingly done by the panel doctors in mutually providing treatment for all insured persons during the present national crisis, which is necessitating the absence of so many medical practitioners."

At the Gloucestershire Insurance Committee's last meeting it was reported that the total contributors were 105,670, or at the ratio of 31 per cent. to the entire population. 181 doctors were on the panel. 18,000 had not yet selected their medical men. One doctor had 3000 on his list, 25 had 1000, 48 had 500, 30 had 250, 19 had 100, 16 had 50, and 32 less than 50. 81 chemists were "on the panel," and during the past 12 months 134,000 prescriptions had been dispensed. The average cost of each prescription was about 8½*d*.

At the last meeting of the Somerset County Insurance Committee it was stated that from Jan. 12th, 1913, to June 11th, 1914, the pharmacists of the county received £5000, while the medical men received £3624. One member remarked that "the amount received by the doctors was out of all proportion in comparison with that received by the chemists," and he considered "the chemists of Somerset were getting too little for their services"!

ASYLUM REPORTS.

Royal Edinburgh Mental Hospital, Morningside (Annual Report for the Year 1914).—The total number of cases under treatment during the year was 1036 and the number of admissions was 240. In speaking of the causes of insanity among those admitted, Dr. George M. Robertson, the physician-superintendent, says that the outstanding feature among the exciting causes given by the relatives of the patients last year to account for the onset of their insanity is the unusual prominence of those of a mental or moral nature. During the previous period of five years the annual number of cases whose insanity was alleged to originate in this manner gave an average of 11 per cent. Last year the number suddenly rose to 18·7 per cent. of the admissions. The explanation which naturally occurs to everyone to account for this unusual feature is the war, and to a certain extent this is probably correct. There were at least 15 patients admitted in whom the relatives traced the immediate cause of the attack to the war, either directly or indirectly. From the variety of kinds of mental disturbance, however, and because a considerable proportion of these patients had suffered from previous attacks, one doubts the importance given to the war as an exciting cause by the relatives. In the case of a comparatively small number of persons it may be admitted that the direct or indirect effects of the war have proved a cause of mental derangement. Taking the population as a whole, however, one finds that the war, so far as it has operated, has apparently acted as a mental tonic, for the number of admissions to the Scottish asylums seems to have fallen slightly below the average since it began. It is noticeable that the war is reflected in the delusions of some of the patients, the commonest being the belief of many melancholic patients that they individually are responsible for the war and all its misery. Some go even further and accuse themselves of being the Kaiser. The vast majority, however, take little or no interest in the war, and many deny that there is any at all. Dr. Robertson also refers to the frequency of alcohol as a cause of insanity, and remarks that the effects of the drastic experiment of the Russian authorities must be carefully studied by us, with a view of introducing stronger measures than we have been disposed to do in the past. There were 159 discharges, with a recovery rate of 33 per cent. on the total number of admissions. The deaths numbered 77, giving a percentage of 9·7 on the average number resident. The most important medical research during the year was that done by Dr. Daniel Ritchie, in his investigation into the causation of insanity, by a study of the home conditions, habits, and heredity of patients admitted from Leith. This species of investigation is known as "field work" in America, and it is for the first time in this country that systematic, accurate, and exhaustive inquiries are being made into these important matters by a trained medical man.

Barnwood House Hospital for the Insane, near Gloucester (Annual Report for the Year 1914).—The total number of cases under treatment during the year was 178, including 2 voluntary boarders. The number of admissions was 19, which is the lowest admission-rate in the history of the hospital. For the previous ten years the average rate of admission was 35 yearly. Apparently there is no explanation for this falling off in the number of admissions. There

were 17 discharges, with a recovery-rate of 47·3 per cent. on the total admissions, as compared with 33·3 per cent. in the previous year. The deaths were 8 in number, the death-rate on the daily average number resident being 5·22 per cent. The only noticeable fact about the causes of death is that in 3 of the 8 cases death was due to pulmonary tuberculosis. Two of these were the subjects of dementia præcox, a form of mental disorder in which tuberculosis is prone to manifest itself, although the experience of this asylum in the past has not confirmed this observation.

Ayr District Asylum, Ayr (Annual Report for the Year 1914).—The total number of cases under treatment during the year was 731, or 20 above the previous record of 1913. The average daily number resident was 578·01, of which 307·56 were men and 270·45 women. While the women are only 6 more than 15 years ago, the men have increased by over 100 cases in about the same period. The admissions numbered 161. With regard to the causes of the attack, hereditary predisposition was ascertained in only 24 per cent. of the admissions. Alcoholic excess was present in the history or clinical symptoms of 47 per cent. of the men and 14 per cent. of the women. Syphilitic infection was present in 9 per cent. Epilepsy has steadily increased of late years, from 5 per cent. in 1911 to 13 per cent. in 1914. There were 88 discharges, with a recovery rate of 36 per cent., which was less than last year, but a distinct improvement on that of the previous six years. A close analysis of the conditions among the recovered this year brought out the fact that half of the men owed their residence in the asylum to the direct result of alcoholic intemperance, as against only 5 per cent. in the case of the women. With regard to the question of insanity as a plea for divorce, it may be significant to mention that among the recoveries this year were persons who had regained their mental health after periods respectively of 4, 6, 7, 10, and 12 years. The number of deaths was 64, making a percentage among the men of 11·7 on the average daily number resident and 10·3 among the women. Tuberculosis participated in the causes of death in 5 cases. For the past six years no male patient has contracted the disease in the asylum, and it is over three years since a single case, and that a doubtful one, was recorded among the women. General paralysis accounted for 28 per cent. of the deaths.

City of London Asylum and Hospital for Mental Diseases, Stone, near Dartford.—There were under treatment during the year 767 patients, the average daily number resident being 613. Of the patients remaining in the asylum on Dec. 31st, 1914, 307 were rate-paid cases and 326 were private cases. The total number of admissions was 154. The principal causes of the illness in those patients in whom a history was obtainable were mental stress and alcoholic excess. Hereditary predisposition to insanity was present in 64 per cent. of those in whom a family history was forthcoming. The discharges numbered 91, and the recoveries 37. The proportion per cent. of recoveries to direct admissions was 31·89. The similar rate for all asylums in England and Wales was 31·9 for 1913. Forty-five patients died during the year. This is a great increase on last year's figures, when the total number of deaths was 27. The previous year the number was 33. After these two years of comparatively few deaths a rise in numbers was to be expected this year. The proportion of deaths to the daily average number resident was 7·34 per cent. Incurable diseases of the nervous system accounted for nearly half of the total number of deaths, and pulmonary tuberculosis was the cause in seven instances. In four cases the disease was in an advanced state on admission.

Incorporated Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded (Annual Report for 1914).—With the passing into law of the Mental Deficiency Act the problems to be faced presented a somewhat different aspect from those considered in previous years. New rules and regulations have had to be followed, and it may still take some time before everything in lunacy work has been brought into line. How to make the most of the new laws with regard to mental deficiency has still to be realised. The authorities of this asylum recognise this. Their attitude is clear. They have, of course, found certain disadvantages from the new laws, they say, but none that will not be overcome in the course of a short time. The chief is that a few of the older children have been lost, the parents having removed them, fearing that they were incurring disadvantages under the new Act—a very grievous mistake. There have also been lost one or two owing to the dilatory and mistaken action of certain local authorities, who refused to take their responsibilities with regard to children liable to be maintained by them. They therefore had to be returned to the care of their parents, thus coming under the direct care of the local authorities in question. In general, however, it is found that the Act can be worked without much difficulty. One of the best features of the Act is that it provides for the working together of volunteers and the State. There are now 102 boys and 59 men in their colony. There was only one death, which was due to cerebro-spinal meningitis.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Percy Uvedale Mawer has been entered as a Surgeon for temporary service in His Majesty's Fleet (dated July 30th).

ARMY MEDICAL SERVICE.

Colonel Robert S. F. Henderson, K.H.P., is seconded for service under the Colonial Office (dated July 24th).

The undermentioned to be temporary Colonels:—Dated May 14th: Lieutenant-Colonel Charles Stonham, C.M.G., R.A.M.C. (T.F.). Dated July 12th: Lieutenant-Colonel William Thorburn, R.A.M.C. (T.F.), and Major George L. Gulland, R.A.M.C. (T.F.). Dated July 14th: Colonel Charles Snodgrass Ryan, Australian A.M.C., temporary Lieutenant-Colonel Frederick D. Bird, R.A.M.C., and temporary Major Sir Victor A. H. Horsley, R.A.M.C.

ROYAL ARMY MEDICAL CORPS.

Thomas Percy Legg to be temporary Lieutenant-Colonel (dated July 23rd).

Herbert George Ashwell to be temporary Lieutenant-Colonel whilst employed at the Bagthorpe War Hospital (dated April 28th).

John Frederick William Silk to be temporary Major (dated July 24th).

Sir John Collie to be temporary Honorary Major (dated July 30th).

Lieutenant-Colonel Robert J. Blackham, C.I.E., from the seconded list, is restored to the establishment (dated August 1st).

Temporary Honorary Lieutenant-Colonel G. S. Buchanan to be temporary Lieutenant-Colonel (dated July 6th).

Lieutenant-Colonel Sir James R. A. Clark, Bart., C.B., unattached list, T.F., to be temporary Lieutenant-Colonel whilst in charge of St. John Ambulance Brigade Hospital (dated July 14th).

A. G. Wilkins to be temporary Honorary Captain whilst serving with No. 5 British Red Cross Hospital (dated July 26th).

The promotion to the rank of Captain of Lieutenant Richard P. Ballard bears date April 7th.

Captain Robert J. B. Buchanan is placed temporarily on the Half-pay List on account of ill-health (dated July 4th).

The undermentioned to be temporary Captains:—Dated July 5th: James Cowan Woods. Dated July 15th: Robert Richard Wallace. Dated July 17th: Patrick Hunter Gillies, late Captain, 8th (Argyllshire) Battalion (Territorial), Princess Louise's (Argyll and Sutherland Highlanders), and Captain Norval James Watt, South African Medical Corps. Dated July 20th: Robert Haldane Makgill. Dated August 8th: Temporary Lieutenant Frank R. Featherstone, late Surgeon, R.N., and temporary Lieutenant Arthur Matthey, late Captain, British Guiana Militia Force.

The undermentioned to be temporary Lieutenants:—Dated June 10th: Donald Trench Skeen. Dated June 15th: Cyril Howard Shearman. Dated July 10th: Owen Felix McCarthy. Dated July 15th: Stanley Walter Williams, George Raphael Binck Purce, Albert Waldegrave Mitchell, James Kennedy Small, John Hegarty, William Hutcheson, William Henry Norman Bright, Reginald Whiteside Statham, Arthur Frederick Gamble Codd, Joseph Cunningham Watson, David Anthony Birrell, Malcolm Ogden Cruickshank, Frederick Henry Allfrey, William Russell, William Hodge McWalter, Thomas Dryden Moffat, Aloysius Marie Joseph Halligan, James Brown-Sim, Alexander Henderson Cran, Conolly Stouppe Miller, Francis Christopher Tibbs, Walter Wiglesworth, David Wilson, and Cyril Wace. Dated July 16th: Thomas Clarke Ritchie. Dated July 17th: Lieutenant Valentine Frederick Stock (Canadian Army Medical Corps), John Edmund Power, Allan Lindsey Saunders, Lieutenant Andrew Peden (Royal Field Artillery, T.F.), Arthur Frederick Flower, Kenneth Bernard Pinson, Edmund Duncan Franchell Hayes, George Oliver Fairclough Alley, Frederick Green, Sydney Garratt Vinter, Harry Armstrong, John Cecil Fisher, Archibald Douglas Hamilton, Frederick George Ralston, Donald Renton, Louis Stephen Shoosmith, Edward Howard Paddison, Robert Dow, Alan Gibb Cook, Neil Macleod, John

Mellon Smeaton, Guido De Piro D'Amico, Thomas Somerville Reeves, and Montagu Travers Morgan. Dated July 19th: James Roy McVail, Henry Potter Hall, George Buchanan, Augustine Fitzgerald Studdert, Geoffrey Ratcliffe Plaister, Alexander Russell Young, Campbell Lamont Miller, Edwin Algernon Lindsay, Abraham Zadok Philips, Henry Little Hardy Greer, Arthur John Wellington Cunningham, Fraser McEwen Sinclair, James Cook, Adam Patrick, Frank Beauchamp Martin, and Robert Neville Geach. Dated July 20th: Joseph Patrick, David Glen, and Alexander Gibson. Dated July 21st: Charles Bromley Davies, Warrington Yorke, James Charles Spillane, William Cranfuird McNaghton Dickey, William Cochran Burns, Robert Tait McKenzie, and Herbert Sydney Smith. Dated July 22nd: Edward Fullerton, Patrick Arthur Sullivan, William Phillips Jones, Cedric Russell, Ralph Rimmer, Arthur Cundell Major, and Frederick Cecil Holman Piggott. Dated July 23rd: G. M. Brown, W. B. Gourlay, S. P. Hodkinson, C. J. Young, D. G. Gardiner, S. G. J. Dowling, S. A. Kuny, H. Slater, T. H. Thomas, J. K. Stewart, J. R. Bryce, and H. Gooch. Dated July 24th: R. J. Attridge, C. F. Brady, and J. W. Riddoch. Dated July 25th: D. Miller, H. Appleton, and W. K. McIntyre. Dated August 1st: Louis Joseph Legris.

Temporary Honorary Lieutenant Thomas G. Evans to be temporary Honorary Captain whilst serving with the Welsh Hospital, Netley (dated July 26th).

The undermentioned to be temporary Honorary Lieutenants:—Dated July 18th: Joseph Russell Tibbles. Dated July 19th: Charles Sherborne Dodson. Dated July 21st: Harold James Bower. Dated July 24th: Eric Arnold Scott. Dated July 27th: C. C. Okell and R. H. Simpson.

The appointment to a temporary Honorary Lieutenancy of William F. Thompson is cancelled.

The appointment to a temporary Lieutenancy of James D. Adamson is antedated to June 14th.

Temporary Lieutenant Gerald W. Maw relinquishes his commission (dated May 23rd).

Temporary Lieutenant John J. L. Ferris relinquishes his commission (dated August 1st).

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Cadet Samuel Brown, from the Belfast University Contingent, Officers Training Corps, to be Lieutenant (on probation).

TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd Highland Field Ambulance: Lieutenant Frederick C. Chandler to be temporary Captain.

1st West Lancashire Field Ambulance: Major William T. Blackledge, from 2nd West Lancashire Field Ambulance, to be temporary Lieutenant-Colonel.

1st Northumbrian Field Ambulance: To be Lieutenants: Cadet Andrew Govan McFarlane (from the Durham University Contingent, Senior Division, Officers Training Corps), Francis James Blair Robson, and Charles Gordon Strachan.

3rd Northumbrian Field Ambulance: Major John Gray to be temporary Lieutenant-Colonel.

1st Northern General Hospital: To be Lieutenants: Alfred John Watson Stephen and Reginald Arthur Hooper (late Cadet, Durham University Contingent, Senior Division, Officers Training Corps).

1st Southern General Hospital: Lieutenant Ernest C. Bradford and Bertrand Seymour Jones to be Captains, whose services will be available on mobilisation.

Highland Mounted Brigade Field Ambulance: Major John Leach, from Attached to Units other than Medical Units, to be Major.

2nd East Anglian Field Ambulance: To be Lieutenants: William John Wilkinson, John Humphrey, and Alexander Dawson Reid.

1st West Riding Field Ambulance: Lieutenant Harry W. Shadwell, from Attached to Units other than Medical Units, to be Captain.

1st London (City of London) General Hospital: Lieutenant Arnold W. Stott is seconded for duty with a General Hospital overseas. John Duncan Legge Currie to be Lieutenant.

1st Western General Hospital: Major Claude Rundle to be temporary Lieutenant-Colonel.

1st South Midland Mounted Brigade Field Ambulance: Major Thomas Henderson Forrest to be Lieutenant-Colonel.

2nd South-Western Mounted Brigade Field Ambulance: Captain Rupert Waterhouse to be temporary Major.

2nd East Anglian Field Ambulance: To be Lieutenants: John Anderson and Norman McGaan Smith.

3rd Lowland Field Ambulance: Robert Lawson to be Lieutenant.

3rd Northern General Hospital: James Sholto Cameron Douglas to be Captain, whose services will be available on mobilisation. To be Lieutenants: Joseph Pearson and Frank Harvey.

2nd London Sanitary Company: Charles Derwent Edwards to be Lieutenant.

1st Lowland Field Ambulance: Ernest Switzer Forde (late Captain, 5th (Dumfries and Galloway) Battalion, The King's Own Scottish Borderers) to be Major (temporary).

1st Wessex Field Ambulance: Ernest Hasler Helby to be Lieutenant.

Attached to Units other than Medical Units.—Captain William L. Martin and Captain Selby W. Plummer to be Majors. George Higginson (late Lieutenant, 1st Shropshire and Staffordshire Royal Garrison Artillery (Volunteers)) to be Captain.

COLONIAL MEDICAL SERVICES.

West African Medical Staff.—The deaths are reported of Dr. J. A. Beattie, Mr. F. J. A. Baldwin, and Mr. A. W. H. Grant. Dr. J. A. Clough, provincial medical officer, Gold Coast, has been transferred on promotion to Nigeria as Deputy Principal Medical Officer, and Dr. M. E. O'Dea, senior medical officer, Nigeria, has been transferred on promotion to the Gold Coast as Provincial Medical Officer. The following retirements are announced: Dr. C. R. Chichester, deputy principal medical officer, Nigeria (on pension), and Mr. F. W. McCay. Dr. A. C. N. McHattie, late chief medical officer, Bahamas, has been appointed Medical Officer, Nigeria. Dr. E. E. Maples, medical officer, Nigeria, has been re-employed.

Other Colonial Medical Appointments.—Mr. F. Mahabir has been appointed Supernumerary Medical Officer, Trinidad, and seconded for service as Assistant Medical Superintendent in the Lunatic Asylum. Dr. J. C. McNaughton has been appointed Medical Officer, Gilbert and Ellice Islands Protectorate; Mr. R. P. Weldon Supernumerary Medical Officer, Trinidad; Dr. H. R. Maclurkin Medical Officer, Fiji; Mr. N. H. Brewster Supernumerary Medical Officer, Trinidad; Dr. H. W. Bell Medical Officer, Wei-hai-Wei; Dr. J. S. O'Sullivan Medical Officer, Solomon Islands; Dr. H. W. L. Waller Medical Officer, Zanzibar Protectorate; and Dr. W. L. Peacock, Temporary Medical Officer, Uganda Protectorate.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 largest English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7946 births and 3954 deaths were registered during the week ended Saturday, July 31st. The annual rate of mortality in these towns, which had been 11·7, 11·4, and 11·4 in the three preceding weeks, was, in the week under notice, again 11·4 per 1000 of their aggregate population, estimated at 18,136,180 persons at the middle of last year. During the first four weeks of the current quarter the mean annual death-rate in these towns averaged 11·5, against a corresponding rate of 11·2 per 1000 in London. The mean annual death-rate for the week under review ranged from 3·5 in Wimbledon, 5·6 in Southend-on-Sea, 5·9 in Hornsey, 6·3 in Cambridge, 6·5 in Southport, and 6·6 in Edmonton, to 16·6 in Northampton, 16·7 in Warrington, 17·0 in Acton, 17·6 in Aberdare, 17·8 in Gillingham, and 17·9 in Wallasey.

The 3954 deaths from all causes were 1 below the number in the previous week, and included 346 which were referred to the principal epidemic diseases, against 335 and 366 in the two preceding weeks. Of these 346 deaths, 171 resulted from infantile diarrhœal diseases, 71 from measles, 39 from whooping-cough, 33 from diphtheria, 23 from scarlet fever, and 9 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was 1·0 per 1000, and coincided with that recorded in each of the four preceding weeks. The deaths of infants (under 2 years) attributed to diarrhœa and enteritis, which had been 85, 121, and 144 in the three preceding weeks, further rose to 171 in the week under notice, and included 31 in London, 25 in Liverpool, 15 in Leeds, 10 in Manchester, 8 in Birkenhead, and 6 each in Bootle and in Sheffield. The deaths referred to measles, which had steadily declined from 239 to 98 in the eight preceding weeks, further fell to 71, and caused the highest annual death-rates of 1·6 per 1000 in Middlesbrough, 1·7 in Walsall, 1·9 in Barnsley, and 2·6 in Lincoln. The fatal cases of whooping-cough, which had declined from 62 to 42 in the five preceding weeks, further fell to 39, and included 11 in London, 3 in Portsmouth, and 2 each in Birmingham, Birkenhead, Liverpool, and Leeds. The deaths from diphtheria, which had been 47, 28, and 43 in the three preceding weeks, fell to 33; 7 deaths occurred in London, 3 in Bournemouth, and 2 each in Stoke-on-Trent, Liverpool, Rochdale, Preston, and Bradford. The fatal cases of scarlet fever, which had been 32, 27, and 30 in the three preceding weeks, fell again to 23 in the week under notice, and included 5 in London and 3 in Sheffield. The deaths from enteric fever, which had been 12, 15 and 9 in the three preceding weeks, were again 9 in the week under review; 2 of these deaths occurred in London.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2471, 2468, and 2483 in the three preceding weeks, fell again to 2431 on July 31st; 294 new cases were admitted during the week, against 322, 290, and 342 in the three preceding weeks. These hospitals also contained on the date mentioned 1093 cases of diphtheria, 55 of enteric fever, 46 of measles, and 7 of whooping-cough, but not one of small-pox. The 940 deaths from all causes in London were 27 fewer than in the previous week, and corresponded to an annual rate of 10·9 per 1000. The deaths referred to diseases of the respiratory system, which had been 134, 117, and 126 in the three preceding weeks, further fell to 103 in the week under notice, and were 10 below the number registered in the corresponding week of last year.

Of the 3954 deaths from all causes in the 96 towns, 204 resulted from different forms of violence, and 339 were the subject of coroners' inquests, while 1219 occurred in public institutions. The causes of 39, or 1·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Bradford, Leeds, Sheffield, and Newcastle-on-Tyne, and in 71 smaller towns. Of the 39 uncertified causes of death, 6 were registered in Birmingham, 4 each in Gillingham and in Liverpool, and 3 in Stoke-on-Trent.

In the 96 English and Welsh towns 6770 births and 3914 deaths were registered during the week ended Saturday, August 7th. The annual rate of mortality in these towns, which had been 11·4 per 1000 in each of the three preceding weeks, fell to 11·3 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 11·4, against a corresponding rate of 11·1 per 1000 in London. The annual death-rate last week ranged from 4·5 in Bath, 5·0 in Walthamstow, 5·2 in Ilford, 5·7 in East Ham, and 5·9 in Hornsey, to 17·0 in West Hartlepool, 17·1 in Wigan, 17·3 in South Shields, 17·8 in Bootle, and 18·1 in Middlesbrough.

The 3914 deaths from all causes were 40 fewer than the number in the previous week, and included 393 which were referred to the principal epidemic diseases, against 366 and 346 in the two preceding weeks. Of these 393 deaths, 202 resulted from infantile diarrhœal diseases, 70 from measles, 46 from diphtheria, 42 from whooping-cough, 20 from scarlet fever, and 13 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·1, against 1·0 per 1000 in each of the five preceding weeks. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had increased from 67 to 171 in the five preceding weeks, further rose to 202 last week, and included 45 in London, 24 in Liverpool, 17 in Leeds, 12 in Birmingham, 9 in Birkenhead, and 8 each in Bootle and Manchester. The deaths referred to measles, which had steadily declined from 239 to 71 in the nine preceding weeks, were 70 last week, and caused the highest annual death-rates of 1·1 in Bradford and in Sheffield, 1·2 in York, 1·8 in Bury, 2·1 in Middlesbrough, and 2·6 in Lincoln. The fatal cases of diphtheria, which had been 28, 43, and 33 in the three preceding weeks, rose to 46 last week, of which 7 occurred in London and 3 each in Bolton and Sheffield. The deaths attributed to whooping-cough, which had declined from 62 to 39 in the six preceding weeks, rose to 42 last week, and included 13 in London, 4 in Sheffield, and 3 in Stoke-on-Trent. The deaths referred to scarlet fever, which had been 27, 30, and 23 in the three preceding weeks, further fell to 20 last week, and included 4 in London and 2 in Birmingham. The fatal cases of enteric fever, which had been 15, 9, and 9 in the three preceding weeks, rose to 13 last week, of which 3 occurred in Rhondda.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had been 2468, 2483, and 2431 at the end of the three preceding weeks, rose to 2436 on Saturday last; 285 new cases were admitted during the week, against 290, 342, and 294 in the three preceding weeks. These hospitals also contained on Saturday last 1140 cases of diphtheria, 62 of enteric fever, 53 of measles, and 6 of whooping-cough, but not one of small-pox. The 937 deaths from all causes in London were 3 fewer than in the previous week, and corresponded to an annual death-rate of 10·8 per 1000. The deaths referred to diseases of the respiratory system, which had been 117, 126, and 103 in the three preceding weeks, rose to 112 in the week under notice, but were 10 below the number registered in the corresponding week of last year.

Of the 3914 deaths from all causes in the 96 towns, 186 resulted from different forms of violence and 365 were the subject of coroners' inquests, while 1191 occurred in public institutions. The causes of 38, or 1·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Manchester, Sheffield, Leeds, Bristol, Hull, Newcastle-on-Tyne, and in 49 other smaller towns. Of the 38 uncertified causes of death, 9 were registered in Birmingham, 3 in Liverpool, and 2 each in Gateshead and Tynemouth.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns, with an aggregate population estimated at 2,345,500 at the middle of this year, 1068 births and 622 deaths were registered during the week ended Saturday, July 31st. The annual rate of mortality in these towns, which had been 15·7, 12·5, and 14·2 in the three preceding weeks, fell again to 13·8 per 1000 in the week under notice. During the first four weeks of the current quarter the mean annual death-rate in these towns was 14·1, against a corresponding rate of 11·5 per 1000 in the large English towns. Among the several towns the death-rate during the week ranged from 4·7 in Clydebank, 9·1 in Falkirk, and 11·3 in Motherwell, to 16·9 in Leith, 17·1 in Aberdeen, and 18·0 in Greenock.

The 622 deaths from all causes were 16 fewer than in the previous week, and included 87 which were referred to the principal epidemic diseases, against 88 and 98 in the two preceding weeks. Of these 87 deaths, 46 resulted from measles, 19 from infantile diarrhœal diseases, 13 from scarlet fever, 7 from diphtheria, and 2 from whooping-cough, but not one from small-pox or enteric fever. The mean annual death-rate from these diseases was equal to 1·9 per 1000, against 1·0 in the large English towns. The deaths attributed to measles, which had declined from 89 to 40 in the six preceding weeks, were 46 in the week under review, and included 32 in Glasgow, 5 in Aberdeen, 3 in Leith, and 2 in Paisley. The deaths of infants (under 2 years) referred to diarrhœa and enteritis, which had been 16 and 21 in the two preceding weeks, were 19; 7 of these occurred in Glasgow and 5 in Dundee. The deaths from scarlet fever, which had been 9 and 14 in the two preceding weeks, were 13, and included 5 in Glasgow, 4 in Aberdeen, and 2 in Paisley. The fatal cases of diphtheria, which had been 7 and 8 in the two preceding weeks, were 7, and included 3 in Aberdeen and 2 in Glasgow. Of the 2 deaths from whooping-cough, 1 occurred in Glasgow and 1 in Aberdeen.

The deaths referred to diseases of the respiratory system, which had been 76, 60, and 72 in the three preceding weeks, fell to 46 in the week under notice, and were 15 below the number registered in the corresponding week of last year. The deaths referred to the several forms of violence numbered 29, against 27 and 13 in the two preceding weeks.

In the 16 largest Scotch towns 1025 births and 615 deaths were registered during the week ended Saturday, August 7th. The annual rate of mortality in these towns, which had been 12·5, 14·2, and 13·8 per 1000 in the three preceding weeks, further declined to 13·7 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 14·0, against a corresponding rate of 11·4 per 1000 in the large English towns. Among the several towns the death-rate last week ranged from 5·0 in Motherwell, 5·9 in Coatbridge, and 8·1 in Hamilton, to 16·2 in Perth, 17·1 in Aberdeen, and 19·0 in Paisley.

The 615 deaths from all causes were 7 fewer than the number in the previous week, and included 79 which were referred to the principal epidemic diseases, against 98 and 87 in the two preceding weeks. Of these 79 deaths, 33 resulted from measles, 21 from infantile diarrhœal diseases, 13 from whooping-cough, 9 from scarlet fever, and 3 from diphtheria, but not one from enteric fever or from small-pox. The mean annual death-rate from these diseases was equal to 1·8, against 1·1 per 1000 in the large English towns. The deaths attributed to measles, which had been 44, 40, and 46 in the three preceding weeks, fell to 33 last week, of which 19 occurred in Glasgow, 6 in Aberdeen, and 3 in Paisley. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 16, 21, and 19 in the three preceding weeks, rose to 21 last week, and included 10 in Glasgow and 3 each in Dundee and Greenock. The fatal cases of whooping-cough, which had been 11, 13, and 2 in the three preceding weeks, rose to 13 last week; 5 deaths belonged to Glasgow and 2 each to Edinburgh, Aberdeen, and Paisley. The deaths attributed to scarlet fever, which had been 9, 14, and 13 in the three preceding weeks, fell to 9 last week, and comprised 5 in Glasgow and 4 in Aberdeen. The fatal cases of diphtheria, which had been 7, 8, and 7 in the three preceding weeks, fell to 3 last week, but showed no great excess in any of the towns.

The deaths referred to diseases of the respiratory system, which had been 60, 72, and 46 in the three preceding weeks, rose to 70 last week, and were 15 in excess of the number registered in the corresponding week of last year. The deaths from the several forms of violence numbered 21, against 13 and 29 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,212,380 persons at the middle of this year, 560 births and 327 deaths were registered during the week ended Saturday, July 31st. The annual rate of mortality in these towns, which had been 13·3, 12·6, and 14·7 per 1000 in the three preceding weeks, fell to 14·1 per 1000 in the week under notice. During the first four weeks of the current quarter the mean annual death-rate in these towns was 13·7 per 1000, against corresponding rates of 11·5 and 14·1 respectively in the English and Scotch towns. The annual death-rate during the week was equal to 13·6 in Dublin (against 10·9 in London and 13·9 in Glasgow), 15·0 in Belfast, 9·5 in Cork, 16·5 in Londonderry, 23·0 in Limerick, and 11·4 in Waterford, while in the 21 smaller towns the death-rate was 13·0 per 1000.

The 327 deaths from all causes were 14 fewer than the number in the previous week, and included 31 which were referred to the principal epidemic diseases, against 27 and 24 in the two preceding weeks. Of these 31 deaths, 16 resulted from infantile diarrhœal diseases, 8 from whooping-cough, 4 from measles, 2 from diphtheria, and 1 from scarlet fever, but not one either from enteric fever or from small-pox. The mean annual death-rate from these diseases was equal to 1·3 per 1000, against corresponding rates of 1·0 and 1·9 in the English and Scotch towns respectively. The deaths attributed to infantile diarrhœa, which had been 8 and 7 in the two preceding weeks, rose to 16, and included 7 in Dublin, 3 in Belfast, and 2 each in Londonderry and in Waterford. The fatal cases of whooping-cough, which had been 7 and 9 in the two preceding weeks, were 8 in the week under notice, and included 4 in Belfast and 3 in Londonderry. The deaths from measles, which had been 5 and 2 in the two preceding weeks, were 4, and included 3 in Belfast. The 2 deaths from diphtheria belonged to Belfast and Cork respectively, and the death from scarlet fever to Belfast.

The deaths referred to diseases of the respiratory system, which had been 56, 31, and 36 in the three preceding weeks, were again 36 in the week under notice. Of the 327 deaths from all causes, 98, or 30 per cent., occurred in public institutions, and 1 resulted from violence. The causes of 12, or 3·7 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified deaths did not exceed 1·0 per 1000.

In the 27 town districts of Ireland 573 births and 277 deaths were registered during the week ended Saturday, August 7th. The annual rate of mortality in these towns, which had been 12·6, 14·7, and 14·1 per 1000 in the three preceding weeks, further fell to 11·9 per 1000 in the week under notice. During the first five weeks of the current quarter the mean annual death-rate in these towns averaged 13·3, against corresponding rates of 11·4 and 14·0 per 1000 in the English and Scotch towns respectively. The annual death-rate last week was equal to 12·4 in Dublin (against 10·8 in London and 13·0 in Glasgow), 11·3 in Belfast, 12·9 in Cork, 15·2 in Londonderry, 12·2 in Limerick, and 11·4 in Waterford, while in the 21 smaller towns the mean rate was 11·3 per 1000.

The 277 deaths from all causes were 50 fewer than the number in the previous week, and included 24 which were referred to the principal epidemic diseases, against 24 and 31 in the two preceding weeks. Of these 24 deaths, 13 resulted from infantile diarrhœal diseases, 4 from whooping-cough, 3 from diphtheria, 2 from scarlet fever, and 1 each from measles and enteric fever, but not one from small-pox. The mean annual death-rate from these diseases was equal to 1·1, against corresponding rates of 1·1 and 1·8 per 1000 in the English and Scotch towns respectively. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 8, 7, and 16 in the three preceding weeks, fell to 13 last week, of which 7 occurred in Dublin and 3 each in Belfast and Londonderry. The deaths attributed to whooping-cough, which had been 7, 9, and 8 in the three preceding weeks, fell to 4 last week, but showed no great excess in any of the towns. Of the 3 fatal cases of diphtheria, 2 belonged to Belfast and 1 to Dublin. The 2 deaths from scarlet fever were recorded in Belfast, and those from measles and enteric fever in Dublin.

The deaths referred to diseases of the respiratory system, which had been 31, 36, and 36 in the three preceding weeks, fell to 26 in the week under notice. Of the 277 deaths from all causes, 99, or 36 per cent., occurred in public institutions, and 10 resulted from different forms of violence. The cause of 8, or 2·9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified deaths did not exceed 1·0 per 1000.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Princess Patricia Hospital at Bray, Co. Wicklow.

ALTHOUGH there have been some soldiers in the Princess Patricia Hospital for a few weeks past, the opening ceremony was not performed until August 3rd, when His Excellency the Lord Lieutenant and Lady Wimborne visited the institution and declared it open. The hospital, which occupies the building formerly known as the International Hotel, has 200 beds. Its object is to accommodate sick or wounded soldiers who are not in need of surgical treatment, and thereby to set free beds in the general hospitals of Dublin for such patients as require operative help or special care. Up to the present the general hospitals have been much hampered by overloading with chronic cases, and judicious use of the hospital at Bray will render the work of the Dublin hospitals much more effective.

Hospital Ship to Dublin.

The hospital ship *Oxfordshire* arrived in Dublin on August 7th, having on board 611 sick or wounded soldiers, of whom 14 were officers. Many of the sick were soldiers who had been in the Expeditionary Force for nearly a year. An ambulance train was run to Belfast from the boat-side, and another to the Curragh and Cork. About two-thirds of the patients were distributed among the various Dublin hospitals.

German Measles.

The Castlederg (co. Tyrone) board of guardians at its meeting on July 31st censured the officer commanding the military camp at Ballycastle, co. Antrim, for allowing a soldier ill with German measles to be sent home from Ballycastle camp to Castlederg, where he had to be admitted to the fever hospital. A recent scarlet fever epidemic in the Castlederg neighbourhood has caused considerable trouble, and the people resented the introduction of another form of infectious disease into their midst.

Presentation to Mr. Hugh Harris.

On July 21st, Mr. Hugh Harris, on his retirement from the office of dispensary medical officer of Stewartstown—a position he has occupied for a period of 32 years—was presented by his patients and friends in the district with a purse of sovereigns. During his long professional connexion with Stewartstown (co. Tyrone), Mr. Harris has done a great work in improving the sanitary condition of his native district, so that Stewartstown is now one of the cleanest and healthiest towns of its size in Ulster. He was also the means of securing, some years ago, the appointment of a fully trained maternity nurse, whose services have proved of great benefit to the poor.

Scarlet Fever in Belfast.

The prolonged Belfast epidemic of scarlet fever is now apparently endemic, for at the monthly meeting of the city council, held on August 3rd, it was reported that out of the 158 cases of infectious disease notified between June 20th and July 17th 131 were cases of scarlet fever.

August 9th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Sanitation in Assam.

THE annual sanitary report of the Province of Assam for 1914 shows that the year was, on the whole, an unusually healthy one. The birth-rate was slightly above and the death-rate substantially below the average for the preceding five years, and the mortality from the more serious epidemic diseases was comparatively low. The large decrease in the number of deaths from kala-azar and the check to the upward tendency of the mortality from that disease, which has been a source of anxiety during recent years in the districts of Nowgong and Goalpara, are particularly satisfactory, and afford grounds for the hope that the measures taken to eradicate the disease from the province will prove successful. The death-rate from fever was slightly above the decennial average, and it is a matter of much regret that it was found necessary to recall to military duty the distinguished officer who was deputed by the Government of India to undertake the malaria research work contemplated by the local administration. The registration of vital statistics is in many districts still very imperfectly performed. In certain areas, where the recorded rates of births and deaths were suspiciously low during the preceding year, special inquiries revealed large numbers of omissions, and it is more than probable that the low records reported from several areas during the year under review are due to defective registration. The large percentage of omissions discovered in certain areas of compulsory registration, notably in the Surma Valley, and the failure to deal adequately with the defaults are unsatisfactory and will be suitably dealt with. So far as urban registration is concerned, the appointment of medical officers as municipal sanitary inspectors and the utilisation of their services in the registration of vital statistics—measures which were introduced in the course of the year under review—should effect a marked improvement in future. As regards rural areas, suggestions have been made by the Sanitary Commissioner which will receive early consideration. Good progress was generally made in the improvement of rural water-supply with the Government grant of Rs. 10,000 made to each local board in 1913, and a start was also made with a special scheme for the improvement of the water-supply along the banks of the Kallong river in Nowgong, an area specially liable to water-borne diseases. The five years' programmes of water-supply, which were prepared by all boards as the result of a conference held in 1913, were finally approved after the close of the year under report, and the first year's work is being financed from the current year's budget. The continued expansion of the sale of quinine "treatments" is eminently satisfactory. The Secretary of State has sanctioned the Chief Commissioner's proposal of the appointment of a separate Sanitary Commissioner for Assam, and it is hoped to give effect to the scheme at an early date. The Hon. Colonel Banatvala is commended for his careful administration of the department, and Major McCombie Young for the zeal and energy which he has displayed in the discharge of his duties as Deputy Sanitary Commissioner.

Maternity Home Hospital for Women, Bombay.

The first yearly report of the Gynæcological Hall and Maternity Home Hospital for Women, Bombay, shows that this little hospital for women was started in August, 1913, with accommodation for four beds only. At the pressing request of some lady patients a maternity ward was added in July, 1914. As the patients began to appreciate the advantages of this institution and work increased various improvements were gradually made. To meet with the increasing demand the place had to be shifted to Mahammadi Mahal and the number of the beds correspondingly increased. A consulting medical staff, consisting of an obstetrician and gynæcologist, a physician, a bacteriologist, and an anæsthetist, was appointed and the nursing staff increased. The total number of admissions during the period under report was 116; of these, 79 were for gynæcological treatment and 37 for confinements. The total number of operations performed was 38, of which 14 were abdominal operations.

St. John Ambulance Association.

The annual general meeting of the St. John Ambulance Association in India was held at Viceregal Lodge, Simla, His Excellency the Viceroy presiding. Among those present were the Lieutenant-Governor of the Punjab, the Commander-in-Chief, the Bishop of Lahore, the Kaur Sahib of Patiala, and Sir Pardey and Lady Lukis. The Commander-in-Chief, chairman of the Indian council of the association, said that ambulance work was going on in every corner of India, and the Indian Ambulance Department of the association had ably maintained the best traditions of the order. Surgeon-General Sir Pardey Lukis, in presenting the report to the meeting, announced that His Highness the Maharaja of Scindia had intimated his intention of presenting 500 units for the use of British troops, thus bringing the total amount of the generous donation up to 1000 ten-bed units, of an estimated value of over 2 lakhs. Three motor-boats, he added, had now been sent to the Persian Gulf, and in addition to these three they hoped to be able to supply ten more of light draught and suitable for river work, while there had been already received from Her Highness the Begum Sahiba of Bhopal Rs. 14,000 for the purchase of two such boats. Through Lady Earle they had now received an offer of two more motor ambulances from the ladies of Assam, thus bringing the total for that province up to four, three of which had been given by the ladies of Assam and one by Her Highness the Rani of Bijni. Sir Arthur Ker, honorary treasurer of the association, presented a statement of accounts, which showed steady financial progress, but he said that a much larger endowment reserve fund was required if the future of the association was to be definitely assured. Colonel R. J. Blackham, general secretary, having described the reorganisation of three provincial centres for administrative purposes, the Viceroy alluded in stirring terms to the work done by the association since the outbreak of war, the splendid liberality of the ruling chiefs, and the devoted personal service of the officers.

THE LATE DR. ALFRED MANN.—Mr. Alfred Mann, M D., C.M. Edin., died on August 3rd at a nursing home after an operation. He had done good work on the Chester town council and was chairman of the public health committee from 1908 to 1912. He was also an active member of the Chester port sanitary authority. He was placed on the commission of the peace in 1913.

Correspondence.

"Audi alteram partem."

THE TREATMENT OF WOUNDS.

To the Editor of THE LANCET.

SIR,—We gather from the postscript attached to Mr. C. A. Morton's letter in your issue of August 7th, that he has since realised the cause of some of the difficulties to which he calls attention; but we should like to explain to him a passage in our recent paper on antiseptics which has conveyed a wrong impression to him. When we said, "An antiseptic as a primary method of treatment must fail," we did not mean "primary" in time but in importance. If a surgeon uses an antiseptic on a wound and subordinates other methods of treatment, such as the knife, his results will not be good; if he paints a wound with iodine and does not remove the pieces of cloth from it, the antiseptic will be wasted, and finally, if he applies iodine and inserts drainage-tubes into a wound when a complete shrapnel fuse can be palpated with the finger[1] it is clear that the antiseptic, however efficient, must fail. In all such cases the antiseptic is perforce made primarily important, merely because conditions will not allow the wounds to be dealt with according to the established rules of surgery. It is war and the wounded must be evacuated without regard for their medical well-being.

Under these circumstances it seemed to us to be of little use to suggest that our mixture should be applied in the first-dressing stations. Iodine is used here and is no doubt satisfactory as a placebo. If, therefore, we laid most stress upon the treatment of the wounded in this country it was because we thought that more immediate good would follow—the conditions of practice are here more placid—and not because we thought that early gunshot wounds could not be satisfactorily treated with an antiseptic.

But apart from these handicaps of necessity, it is to be regretted that confusion should still exist upon relatively simple questions relating to antiseptics. When one surgeon holds that a strong antiseptic is dangerous and another that it is harmless it is clear that some attempt should be made to organise effective research into these matters. At present the treatment of septic wounds appears to be left entirely in the hands of the individual, and the results of independent researches are misapplied from a lack of coördination.

We are, Sir, yours faithfully,

PAUL FILDES,
L. W. RAJCHMAN.

London Hospital Medical College, Mile End, E.,
August 9th, 1915.

FUNCTIONAL DISEASES OF THE ARTERIES.

To the Editor of THE LANCET.

SIR,—The subjoined quotations from Sir Lauder Brunton's valuable paper on Functional Diseases of the Arteries in THE LANCET of July 24th are of interest in regard to the part which the venules play in local disorders of the circulation.

As the arteries contract [in Raynaud's disease] the fingers or toes first become white from absence of blood, and then blue from stagnation of blood in the venous capillaries.

I have myself seen the tips of the fingers in a woman become white, shrivelled, and exactly like those of a corpse.

Osler has described a case in which he has seen one finger white and the adjacent ones red and blue.

I suggest that the essential cause of localised cyanosis is spasm of the venules, and that this may even be a cause of generalised cyanosis. It seems to me that there are at least three varieties of morbid vaso-motor action: arteriolar spasm, arteriolar relaxation, and venular spasm (venular relaxation may perhaps be discarded as a morbid phenomenon). Each of these morbid conditions was admirably displayed in Sir William Osler's remarkable case. In one finger there was arteriolar spasm with whiteness from dearth of blood, in another arteriolar relaxation with redness from excess of arterial blood, in a third venular spasm with blueness due to stagnation of the capillary flow (passive congestion). Arteriolar spasm alone—i.e., without any spasm of the venules—causes, I fancy, whiteness with little tendency to cyanosis from accumulation of blood in the capillaries. The white *shrivelled* condition mentioned by Sir Lauder Brunton is, I suggest, produced by a combined spasm of the arterioles and venules with consequent complete expression of blood from the affected area. Venular spasm without any spasm of the arterioles gives rise to "passive congestion," the blood tends to stagnate and accumulate in the capillaries, so that when it is expressed from them they fill slowly, and the affected region becomes blue from deoxygenation. There is, however, no shrivelling. On the contrary, there may be swelling, and this may be considerable if, as may happen, the venular spasm is accompanied by arteriolar relaxation, which increases the volume of blood in the arterioles (and capillaries?).

Venular spasm is, I feel convinced, the essential cause of that very common and often intractable affection known as blue hands. When it is chronic the tissues thicken from the fibrosis which always accompanies prolonged passive congestion. I have seen some pronounced instances of this. I suggest that the bulbous fingers so frequently met with in congenital heart disease and chronic phthisis are similarly caused by venular spasm, and that this is also a cause of the general cyanosis observed in these conditions. I could advance strong arguments in favour of this conclusion.

I am, Sir, yours faithfully,

Wimpole-street, W., July 28th, 1915. HARRY CAMPBELL.

THE GOVERNMENT GRANT MADE TO PANEL PRACTITIONERS.

To the Editor of THE LANCET.

SIR,—A copy of what in some quarters has been termed a "stirring appeal" has been received during the past few days by every insurance practitioner who happens not to be a member of the trade-union organisation called the Panel Medico-Political Union. As similar appeals have been issued by that body in the past, it would be well carefully to consider this one before adopting the advice given therein to put one's trust in it and to join forthwith.

This stirring appeal contains two statements in its argument: 1. That the Commission intend at a few weeks' notice to introduce in the Regulations what certain members of that Union have termed "revolutionary changes." 2. That the 2*s.* 6*d.* per head grant is in jeopardy, and probably will not be paid in 1916, as the Government is being urged on all sides to effect all possible economy.

[1] Vide THE LANCET, July 31st, p. 223.

The appeal terms the former "a threatened momentous alteration," whilst it considers the latter a "special sacrifice" of panel practitioners. It urges all to join the Union at once and by so doing place it in funds to fight the enemy.

What are the true facts on these two points? 1. That the Commission notified last March to the British Medical Association that it had "no changes of any kind under consideration for adoption during the currency of the present year." This was published in the Panel Medico-Political Union's periodical. 2. That on July 14th last Parliament passed the Estimates for Civil Services, 1915–16, which included the 2*s.* 6*d.* grant for 1916 (Class VII., pages 12, 16, and 20). That being so, this "stirring appeal" for money has been issued either in total ignorance of these two facts, thus marking the Union as an unreliable body; or with the deliberate intention and hope to trade on the probable ignorance of the average panel practitioner. This circular goes on to state that the Union obtained recently certain delayed payments. Shortly, probably, we shall hear that it has obtained the payment of this 2*s.* 6*d.* per head grant.

At this time, when every medical practitioner, even if he can only crawl into a motor or carriage, is trying to repay in part his debt to his country, this appeal for funds for an aggressive campaign is greatly to be deprecated, especially when it is based on fiction. Panel practitioners will do well to consult some reliable and recognised authority for confirmation of "facts" before they part with their hardly earned guineas in response to any "stirring appeals" that may reach them.

I am, Sir, yours faithfully,

Hove, August 17th, 1915. E. ROWLAND FOTHERGILL.

TONSILLECTOMY IN RELATION TO ACUTE RHEUMATISM.

To the Editor of THE LANCET.

SIR,—I do not think Dr. P. R. Cooper, who writes in THE LANCET of July 24th, need blame himself because his patient had acute rheumatism after tonsillectomy, although, as a rule, if there is any healthy tonsil present it should be left. That removal of chronically diseased tonsils should put the patient in a state of liability to contract acute rheumatism is a theory which, being contrary to experience, should be received with much hesitation. On the contrary, I have always looked upon tonsillitis as both primarily rheumatic and provocative of further attacks of rheumatism if the tonsillar inflammation becomes chronic. These remarks apply principally to recurrent attacks of the follicular form of the disease in which the crypts are stuffed with creamy or cheesy material in which streptococci generally abound. The sooner these sources of septic infection are got rid of the better, and through a long experience with such cases I have never had occasion to regret having advised operation. In heart cases I consider the presence of tonsils such as I have described a distinct source of danger and one calling for prompt treatment if the condition of the heart will allow it. In early and mild cases the galvanic cautery applied to the crypts will at times do all that is necessary.

In conclusion I may quote Sir William Osler on the subject: "In patients with diseased tonsils in whom rheumatic fever has occurred removal is advisable and should be always complete" ("Principles and Practice of Medicine," eighth edition, p. 380). "A not infrequent precursor of rheumatic fever"; and, most important as bearing on the question of tonsillectomy, "It is comparable to the removal of any local focus of infection which is causing general symptoms."

I am, Sir, yours faithfully,

CHARLES W. CHAPMAN.

Harley-street, W., August 7th, 1915.

THE LATE MR. EDMUND OWEN.

To the Editor of THE LANCET.

SIR,—I have read with much interest the obituary notice of Mr. Edmund Owen which you published in your issue of July 31st. I should be glad, however, if you would kindly supplement it in your next issue by mentioning the eminent services which our lamented friend rendered to the French Hospital, and for which he received the Cross of the Legion of Honour from the hand of M. Emile Loubet when, as President of the French Republic, he visited the hospital in 1903.

Mr. Edmund Owen succeeded Sir W. MacCormac as surgeon to the French Hospital in December, 1901, and up to his death always manifested the liveliest interest in the hospital; many are the patients who have benefited by his talent and devotion. On several occasions at our annual banquets he gave expression to the sympathy which he had for the French Hospital and the patients whom he had under his care.

But if he loved the hospital, everybody here loved him; his death leaves a great void, and we shall ever regret the loss of a man who combined with the highest professional capacity a character of lofty personality, straightforwardness, and affectionate devotion.

I am, Sir, yours faithfully,

ARTHUR BAUME,
President of the Committee of the French Hospital.

Shaftesbury-avenue, W.C., August 10th, 1915.

AMPUTATIONS FOR GANGRENE.

To the Editor of THE LANCET.

SIR,—Having recently had the opportunity of observing a considerable number of cases where amputation was performed on limbs crushed and burnt in the Gretna railway disaster, I can endorse everything Mr. A. Marmaduke Sheild says in THE LANCET of to-day's date as to drastic measures. I am glad to say that in no case was it thought expedient to resort to the operation of Antyllus.

I am, Sir, yours faithfully,

W. D. ANDERSON,
Medical Officer in Charge, Cumberland Infirmary.

August 7th, 1915.

HOSPITAL TREATMENT *V.* LUNACY TREATMENT.

To the Editor of THE LANCET.

SIR,—I must thank Sir George Savage for his friendly commentary in your issue of July 31st. He has himself long advocated the provision of reception houses where voluntary patients could enter for treatment in the early stages. This solution has never yet had a trial, because no places of the kind as yet exist within reach of the great mass of the community whose means are limited. In such hospitals general practitioners could become acquainted with the nature of the earliest symptoms and the best way to treat them, and receive a training which would be invaluable for the prevention of insanity. This is not a theoretical but a very practical proposal.

In regard to the willingness of patients to go as "voluntary boarders" to private asylums, it must be remembered what a very insignificant fraction 426 per annum represents among the many thousands (20,000, if I mistake not) of mental cases which came within the cognizance of the Lunacy Commission in 1913.

Dr. Steen thinks I have spoken slightingly of the qualifications of mental nurses; but I did not class *all* mental nurses as ignorant and incompetent. What I alluded to was the uncomprehending treatment *so often* administered by many of them. In many asylums the staff nurses could not be excelled in kindly interest, intuition, tact, and patience, even though the majority have had no hospital training.

As to nerve-shaken soldiers, Dr. Goodall has entirely misunderstood what I referred to. I was not speaking of asylums which have been completely commandeered for the sole accommodation of the sick and wounded, and have thus entirely changed their character. I referred to the placing of soldiers whom the War Office acknowledges to be "uncertifiable" in a block of the Middlesex County Asylum at Wandsworth, the remainder of whose inmates are lunatics. This would be illegal if the soldier were a civilian. The public, knowing him to be slightly unbalanced, and finding him in such a place, cannot discriminate as to whether he has been certified as a lunatic or not. This very case was ably put forward in a leading article in THE LANCET on Jan. 23rd, 1915. It is not a question of how well the soldiers are treated there; however excellent the treatment, the taint remains. Lord Knutsford obtained the sanction of the Army Council for hospital treatment for officers to shield them from being associated with asylum taint, but the men run as great a risk, and may find it difficult to obtain employment when the war is over. The War Office has given repeated assurances that the soldiers should not be placed under lunacy control. The report of the Murray Committee on Disablement points out also how prejudicial to a man's industrial future such a course may be. There is therefore the greater reason for taking this into consideration where the soldier has not been diagnosed as mentally affected, but only as transiently unstrung.

I am, Sir, yours faithfully,

August 7th, 1915. S. E. WHITE, M.B., B.Sc. Lond.

EVOLUTIONARY ETIOLOGICAL FACTORS IN DISEASE.

To the Editor of THE LANCET.

SIR,—In THE LANCET of July 31st Dr. J. T. C. Nash deals with specificity from a standpoint that seems to me to require clarification. One would like to know exactly what Dr. Nash wishes to convey when, having referred to relative specificity as an attribute of the infectious diseases, he writes of an etiological link between them in a way that appears to be intentionally indefinite. While realising that a tentative proposition requires careful handling, one is curious to learn whether Dr. Nash's views amount to an attack on the thesis that certain infectious diseases are individual in origin. The term "individual" here predicates that each of the diseases has as its essential cause a germ which, despite variation and the possible coöperation of extrinsic factors, never becomes the essential cause of any of the others.

I am, Sir, yours faithfully,

Wimpole-street, W., August 5th, 1915. JOHN BIERNACKI.

FATALITIES WITH HEDONAL.

To the Editor of THE LANCET.

SIR,—Will you tell me the quickest way to find out information regarding all deaths from hedonal used as an anæsthetic?—I am, Sir, yours faithfully,

July 29th, 1915. EUREKA.

*** Although complete English statistics are wanting respecting the behaviour of hedonal as an anæsthetic, the Registrar-General now obtains from coroners, as well as from medical practitioners, particulars of all deaths resulting from the administration of anæsthetics; and since 1911 special tables have appeared in his annual reports giving full details of such deaths and of the particular anæsthetic employed in each case. From the fact that since the Census year only three deaths have been attributed to hedonal in the whole of England and Wales, a high margin of safety might be attributed to its use; but the limitations suggested in an annotation on p. 346 should be observed. Past experience of the use of hedonal as a general anæsthetic appears to have been over favourable, and many medical men would like the further information on the subject which "Eureka" asks for.—ED. L.

THE INFLUENCE OF LACTATION ON AN OVARIAN GRAFT.

To the Editor of THE LANCET.

SIR,—Many examples of more or less successful graftings of ovaries into the abdominal wall or peritoneal cavity of the human female have been recorded at different times. Among others, the late Mr. Scott Carmichael published successful cases, but as such ovaries have been unavoidably removed on account of pathological conditions of the adjacent viscera, the influence of lactation on such grafts had not been proved. It might almost have been said that it was never likely to be demonstrated, since the usual condition that involves removal of ovaries that are fit for grafting (in part or as a whole) is inflammatory disease of the Fallopian tubes or a tumour of the uterus. Under such circumstances absolute sterility is bound to ensue, and the use of the ovarian graft is to delay the onset of the operative menopause.

In the *Medical Journal of Australia* for January an extraordinary, and it is to be hoped unique, case is recorded and has just come under my eye. It is a case in which normal healthy ovaries were excised during a Cæsarean section as a means of sterilising the patient. The ovaries were subsequently grafted into the abdominal wall. Why such an unusual procedure should have replaced the ordinary operation of removal of the tubes and invagination of the stumps is not explained, and no supposed advantages are mentioned that could in any way outweigh the obvious disadvantages of so gross a castration. We are simply told that the operator decided, "owing to the tubercular condition of the patient and her physical deformities, to sterilise her by transplanting her ovaries." Fortunately this rash proceeding was, at any rate, temporarily successful, as the result of grafting (into the abdominal muscles) was that the onset of the menopause was prevented and the patient menstruated at intervals when last seen three and a half years after the operation. Although it was recognised that lactation exerts a "profound influence ..... on the physiology of the reproductive organs of the female," and although she had signs of advanced tuberculous disease with a discharging sinus in the right hip, she was actually allowed to suckle the child for five months. It is of considerable interest to note that in spite of the possible influence of the lactation on the grafts the patient commenced to menstruate about a month after she

stopped feeding the infant and continued to do so "fairly regularly." These periods were accompanied by some pain in the grafted glands.

I am, Sir, yours faithfully,

July 25th, 1915. OBSTETRICUS.

"NOT NECESSARILY:" A JUDGE AND A WITNESS'S LANGUAGE.

To the Editor of THE LANCET.

SIR,—Witnesses in courts of law are of many kinds, and no doubt some who are not trained to express themselves accurately may fail in their selection of words to convey their meaning. This is not, however, usual where scientific witnesses are concerned, and it was therefore a little surprising to me to find Mr. Justice Scrutton objecting to a phrase employed by Dr. W. H. Willcox in giving evidence in the "Brides' case." Dr. Willcox was being cross-examined as to the possibility of the woman's head being immersed by her legs being suddenly lifted, taking into consideration the fact that the water in the bath was not more than 8 inches deep. It was suggested that the head would consequently have had to be in a certain position, to which the answer given was "Not necessarily." Mr. Justice Scrutton's comment was: "Some day I should like to have an Act of Parliament by which witnesses who say 'Not necessarily' shall be shot." "Not necessarily" is a familiar expression in colloquial English, and a witness has a perfect right to use whatever ordinary English words, in his opinion, are best fitted to convey his meaning. He is, of course, liable to be cross-examined as to what his meaning really is, if it is thought that the words which he has selected do not clearly convey it. I submit, however, that the monosyllable "No," if that is what the learned judge would have preferred, would not have had precisely the same meaning as "Not necessarily." A circumlocution might have served the purpose to the effect that "if the body could have been suddenly placed almost flat on the bottom of the bath the immersion of the head would have been effected with greater certainty of an immediate and fatal result, but this would not be necessary in order to secure a fatal result." Anyhow, a witness of Dr. Willcox's experience and acuteness of mind could have paraphrased his words "Not necessarily" if he had been asked to do so. But a witness should be allowed to choose his own words in order to express a meaning for which he alone is responsible.

I am, Sir, yours faithfully,

LEX.

*** We quite agree with our correspondent, who is in a position to know what he is talking about. "Not necessarily" is a perfectly adequate answer in many cases. Whether it is an affirmative or negative reply it conveys reservations, and therefore invites further inquiries.—ED. L.

ASYLUM ASSISTANTS.

To the Editor of THE LANCET.

SIR,—One is led to wonder at the action of asylum committees in engaging permanent assistants at the present time. With the dearth of young men, both in private practice and the possible requirements of the forces, such a practice seems very reprehensible. Where there is a superintendent and an experienced deputy the other work could be quite well carried out by elderly men on a temporary basis.

I am, Sir, yours faithfully,

July 24th, 1915. X. Y. Z.

The War.

THE CASUALTY LIST.

THE following names of medical men appear among the casualties announced since our last issue:—

Wounded: Lieutenant H. J. Burke, R.A.M.C., attached 8th West Yorkshire Regiment (T.F.); Major T. Holt, attached 6th Lancashire Fusiliers (T.F.), and Captain J. Lithgow, both of the Royal Army Medical Corps (T.F.); and Surgeon H. K. Shaw, R.N., Field Ambulance, Royal Naval Division, Mediterranean Expeditionary Force; Lieutenant J. N. Clark, R.A.M.C., attached 6th Lincoln Regiment.

Died of Wounds: Lieutenant J. Cattanach, R.A.M.C., attached 9th Royal Warwick Regiment; Major S. J. Richards, 1st Australian Clearing Hospital.

Killed: Colonel Neville Manders, Mediterranean Expeditionary Force, attached by special request to the Headquarters Staff, Australian and New Zealand Forces; Lieutenant J. C. Hawkes, attached 8th King's Royal Rifles, and Lieutenant G. MacCallum, attached 6th Duke of Connaught's Light Infantry, both of the Royal Army Medical Corps.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men are to be added to our lists of those who have fallen during the war: Major H. K. Colston, 1st Yorks and Lancaster Regiment, only son of the late Surgeon-General C. K. Colston; Lieutenant L. A. McAfee, 8th Rifle Brigade, youngest son of Dr. W. McAfee, J.P., of Cooleen, West Kirby, Cheshire.

MENTIONED IN DESPATCHES.

The following are added to the list of names recommended for gallant and distinguished service in the field by Field Marshal Sir John French in his despatch dated May 31st: Colonel E. G. Browne, A.M.S., and Dr. Henry Jellett (late Master of the Rotunda Hospital, Dublin).

The following are mentioned in despatches by Sir Ian Hamilton from Gallipoli: Colonel M. T. Yarr, A.M.S. and R.A.M.C.; Surgeon E. G. Schlesinger, R.N. (Howe Battalion); Captain E. T. Brennan, Captain H. L. Welch, Captain C. E. Wassell (1st Field Ambulance), Captain D. MacWhar (3rd Field Ambulance), Lieutenant-Colonel W. W. Gibbon, and Major J. Corbin (1st Australian Casualty Clearing Station), all of the Australian Army Medical Corps; Lieutenant-Colonel W. R. Pearless, V.D., Captain G. Craig, and Major E. J. O'Neill, all of the New Zealand Army Medical Corps.

CROIX ROUGE DE BELGIQUE: THE BASE HOSPITAL AT CALAIS.

L'Institut Jeanne d'Arc, in Calais, was formerly a girls' school, and was requisitioned by Dr. Depage, the President of the Belgian Red Cross Society, towards the end of last year and was quickly transformed into an up-to-date military hospital. The senior officer is Captain Neumann, of the Surgical Institut of Namur, the other medical officers having each the rank of lieutenant. From the rue Champailler a big *porte cochère* gives into a courtyard; directly on the left is the guard-room, with medical officers' quarters above, and on the

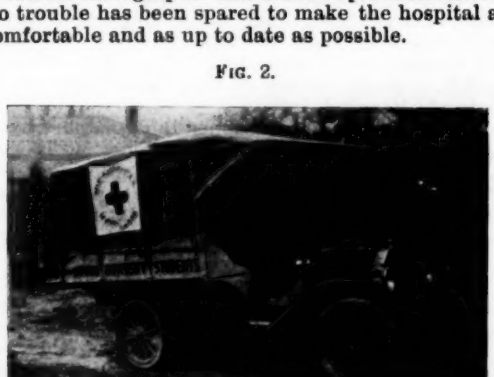
right, where were formerly the school teachers' quarters, the building has been transformed into an operating theatre, sterilisation department, an instrument and bandage room, with the dispensary above. Beyond this courtyard in the grounds is the hospital, a long lofty building divided into wards holding from 7 to 12 beds each. On the ground floor are the wards for men and the dining-room for the staff and nurses, these latter, it is interesting to note, being nearly all drawn from the British Red Cross Society. The first floor is taken

FIG. 1.

An operation at the Belgian Red Cross Hospital at Calais.

up by an isolation ward and the officers' ward, while the floor above, one long vast *salle*, is given over to the convalescents who are waiting to be transferred to the South of France or to England. Annexed to the ground floor is the chapel, which has been transformed into a linen room; there is also an excellent radiographic and radioscopic installation. No trouble has been spared to make the hospital as comfortable and as up to date as possible.

FIG. 2.



The Ford ambulance car presented by Harvard students.

In the photograph (Fig. 1), showing a double operation for "shrapnel," the two operators are Dr. Neumann and Dr. Cassmann, while surrounding the patient from left to right are Dr. Devroye, Dr. Delys, Dr. Devreux, Dr. Le Boulanger, Dr. Le Roy, and the theatre sister, Mrs. Allen, of the British Red Cross Society. The English sisters having picked up quite a lot of French, and the Belgian doctors having attained some English they manage to make themselves now pretty well understood.

The "Ford" ambulance car (Fig. 2) was the first of the American gifts to reach Calais, and was presented by the students of Harvard University. It should be noticed that the stretcher box is built entirely over the back wheels, causing it to ride much more smoothly than when built over both sets of wheels. These cars bring the wounded from Dr. Depage's hospital at La Panne on the Belgian coast down to Calais as soon as they can be moved, the run taking about six hours.

FRENCH ORGANISATION FOR THE CARE OF THE WOUNDED.—M. André Maginot, the deputy who was formerly Under Secretary of State for War, joined his regiment at the mobilisation and was severely wounded near Verdun last September. He is doubly qualified as organiser and combatant to speak concerning the treatment of the wounded in the French army, and he has recently expressed opinions to *Le Journal* which will be read with gratification by his British Allies.

Evidently France has had much the same problems to deal with that we have had here, though a more depleted official class has exaggerated them. An Under Secretary of State for the Health Department has now been created at the Ministry of War, but M. Maginot points out that, though the French War Office is animated with the best intentions, it will not be possible to carry out the matured plans entirely if the staff is not further reinforced. The difficulties of fusing civil and military medical men into a homogeneous medical service are being experienced in France. Even when there are enough qualified civil practitioners at hand it is not always easy to assimilate them to a military scheme. With the aid of the civilian practitioners now forthcoming there are enough doctors available for the French army, which is fortunate, for the supply cannot be increased, for there are no more qualified surgeons who can leave their civil employment. At first the best use was not made of the assistance that was at hand, and even now there is still something to be done to secure a better distribution of the available medical aid. Nevertheless, to-day all this is better managed. More appropriate use is made of specialists and their time is not so often wasted over ordinary work.

The war has lasted so long that many surgeons on the French front are war-worn. A scheme of rota is now needed, M. Maginot thinks, whereby some of those who have borne so heavy a burden during the year of war might be sent to the rear to base hospitals, where the work would be less fatiguing, while others took their place at the front. Thus by changing about it would be possible to better husband the strength of the medical staff. This also would equalise the work and enable all to familiarise themselves with war conditions. It would also dissipate all suspicions of favouritism; the "soft places" would then be reserved for those who, by their hard experience, were entitled to comparative rest. To attain this end, however, there must be personal supervision; it does not suffice for the Ministry of War to send out circulars.

Turning from the medical to the nursing staff there still exist troubles, though fortunately they can be easily remedied. Too much reliance, it appears, has been placed on voluntary nursing in France. The wounded and the sick have not always received the care they needed, and many hospitals have been badly kept. M. Maginot thinks there is still room for improvement and recommends the employment of the wounded—that is to say, some among the convalescents, but more especially those who are quite cured, but crippled. These could not do any nursing requiring expert knowledge, but they could do the clerical work of hospitals, while convalescent non-commissioned officers could be utilised in keeping order in the wards. Many soldiers who are fit to do some work but not to fight find it very hard to take off their glorious uniforms and return to civil life. They would joyfully remain in the military service, though that service is only such as they could render in a hospital, and M. Maginot believes that, supplemented in this way, the nursing staff proper would be free to give more efficient aid to the sick and wounded.

He complains that the service for the transport of the wounded is not sufficiently prompt, and he denounces many of the installations as indifferently provided and the buildings

badly selected to serve as clearing hospitals, but it must be remembered here that it is a layman who is speaking, and one who, in spite of manifold experience, cannot know all the difficulties of medical organisation. M. Maginot points out that the demands made for necessary hospital stores and equipment too often meet with very tardy response. Sometimes, instead of getting what they want, the medical officers in charge are told that they must be more economical, and they hesitate to complain too frequently for fear of being considered bad managers. M. Maginot protests, in conclusion, that Parliament has never refused to vote whatever credits the health services required; and this we can quite believe, for to stint what is needed to treat the wounded, and perhaps to preserve the use of limbs, is not an economy but an extravagance. The best treatment in the long run is not only the most humane but far and away the cheapest. The cost of the instruments of mechanotherapy is small compared with the saving effected by restoring the movements and use of limbs to the soldiers.

Now that the war has lasted a year there has been time enough to remedy the many shortcomings which were inevitable at first. In so far as this has not been done or done sufficiently well, it is fortunate that a former Under Secretary of State for War, who has himself suffered what the wounded have to endure, should raise his voice to demand further and immediate improvements.

THE TREATMENT OF DIARRHŒA IN THE FRENCH ARMY.—The return of hot weather is causing an increase in the frequency of diarrhœa. Usually the troubles this entails are of short duration, but unfortunately it sometimes results in such enfeeblement and emaciation as to compel the removal of the patient from duty. Dr. Lehmann, in a work summarising the treatments which he has employed since the opening of the campaign, avers that opium and bismuth only afford a temporary relief in serious cases. Sulphate of soda, in weak and repeated doses, gives inconstant results, and, moreover, its use is not very convenient amongst the fighting forces, because it is difficult to purge and put on regimen for several consecutive days a man who is at the front. Finally, Dr. Lehmann has adopted ipecacuanha, and has been so satisfied with it that he has had recourse to it in every rather serious case. He administers from 0·80 to 1 gramme of powdered ipecacuanha per diem, divided into 5 or 6 doses of 0·20 gramme each. He directs each dose to be taken in a warm infusion every two hours. On the day of administration the patient is restricted to a liquid diet and milk is forbidden. The following day he may feed on solids again, with the exception of meat. The diarrhœa is not stopped on the actual day of administration, but ceases on the following day. The use of this treatment has made it no longer necessary to remove any patient from duty on account of diarrhœa, and he is not rendered unfit for duty for more than a single day. The remedy is very well tolerated; it sometimes gives rise to nausea, but rarely to vomiting.

THE SANITARY ARRANGEMENTS OF THE ITALIAN ARMY.—Professor Queirolo, who has just returned from the front, contributes to the *Giornale d' Italia* an article on the work of the medical corps. He was struck by the cool, deliberate, and unflurried way in which the medical staff went about their duty, even in times of great pressure, never sparing themselves till the last man had been attended to. He did not see a single case of tetanus. This is largely due to the thorough preventive measures uniformly taken in every case where there is a remote possibility of symptoms manifesting themselves. In none of the districts visited did Professor Queirolo find cases of infectious diseases. The success of the sanitary measures taken in this respect is the more satisfactory in view of the trouble which the Austrian medical corps are having with infectious diseases. The infection has been prevented from spreading to the Italian ranks. There was no case of small-pox, typhoid fever, or cholera. Cases of cerebro-spinal meningitis had occurred among the civilian population before the war, but the disease has not manifested itself in the army. The health of the troops is excellent, the most common complaint being rheumatism. The transport of casualties to the evacuating hospitals is effected with speed and regularity and works in harmony with the ambulance train service. The veterinary sanitary corps are deserving of special praise. Professor Queirolo concludes with warm praise of the medical staff, who have surmounted the inevitable difficulties of their task with complete success. They are, he says, well deserving of the thanks and confidence of the nation.

WOUNDED ALLIES RELIEF COMMITTEE: ASSISTANCE TO BELGIAN DISABLED SOLDIERS.—The committee issue some figures as to the work accomplished by its department, started last December, to deal with disabled Belgian soldiers. Since February its Yorkshire home—Brotherton Hall, Pontefract—has received 52 men, almost all of them residents for the duration of the war; while at 45, Courtfield-gardens, Kensington (opened in April), the committee has accommodated 113 crippled soldiers who have come to London to be fitted with artificial limbs and surgical appliances. Although the supply of these articles, owing to war-time conditions in the trade, is extremely slow, since April 60 artificial limbs and 30 other appliances have actually been supplied, while about 100 others are on order. The department has also found work for more than 120 men, while at Allington Manor, Eastleigh, the committee is accommodating 25 men who through exposure in the trenches have contracted tuberculosis. Contributions towards this work will be gratefully received by the committee's honorary treasurer, Mr. T. O. Roberts (Manager), London County and Westminster Bank, 217, Strand, W.C.

ST. MARYLEBONE WAR HOSPITAL SUPPLY DEPÔT.—The immediate success that followed the opening of the Kensington War Hospital Supply Depôt induced the organiser, Miss Ethel McCaul, to organise one on similar lines in St. Marylebone district. The mayor, Alderman John Fettes, J.P., at once accepted the presidency, and a strong committee, which includes Sir Thomas Barlow, Sir Watson Cheyne, Sir Rickman Godlee, and Dr. Frederick Taylor, was established. Dr. W. S. A. Griffith is the honorary treasurer and Mr. Frank Juler the honorary secretary. The work of the depôt, owing to its rapid increase, has been transferred from 32, Queen Anne-street to more commodious quarters at 2, Cavendish-square, kindly lent by the Earl of Crawford, and even these spacious quarters bid fair, owing to the vast increase of work and workers, to be presently outgrown. The men's department occupies the stables and coach-house, which has been established as a carpenter's shop, where splints of all sorts and sizes are made to standard patterns, and the packing-cases lined with waterproof material are manufactured wherein the finished material of all kinds is packed for distribution to military hospitals of the Allied Forces in all the areas of war as well as at home. More voluntary men workers are urgently required. There is a storeroom in which whole bales of material used in the work are kept and other rooms are devoted to the making of all kinds of bandages and surgical dressings; to the padding and covering of splints, the making of pinewood-sawdust dressings and sphagnum moss bags, of dressing gowns, bed jackets, flannel shirts, and nightwear, and of all kinds of slippers, including slippers large enough to go on a bulkily dressed foot; to sorting, cutting out, and remaking old linen. In the stockrooms the finished articles are sorted and arranged ready for packing in the packing-room in response to requisitions. At present the entire force is engaged in completing an emergency order from the War Office of a quarter of a million attachable khaki pockets. A remarkable feature is the complete absence of waste, all odds and ends of material being put to some profitable use; for instance, in the carpenter's shop the useless remnants of wood are split up and tied in bundles of firewood and sold for the benefit of the fund. The work is entirely done by several hundred voluntary workers, each of whom contributes 1*s.* a week. This sum entirely covers the running expenses, so that every penny of any donation received, and of the sales of waste material and the profit from the tearoom, where an excellent tea is provided at 3*d.* a head, goes to the purchase of fresh material for the manufacture of supplies. Cheques should be made payable to Dr. Walter Griffith, 96, Harley-street, W., the honorary treasurer, and crossed London County and Westminster Bank. Gifts of antiseptics, invalids' foods, clothes, blankets, socks, rubber hot-water bottles, and especially old linen, will be very welcome. Visitors, especially medical men, are cordially invited to inspect the work in progress.

AN ANGLO-RUSSIAN HOSPITAL UNIT.—Lord Cromer is president of an Anglo-Russian Committee in London to collect subscriptions for the establishment of a complete hospital unit to serve on the Russian front, where the conditions during a retreat are such that serious losses must be the inevitable result of lack of adequate medical aid. The honorary secretary's address is Anglo-Russian Hospital, 116, Victoria-street, Westminster. Subscriptions should be sent to the Anglo-Russian Hospital Fund, Messrs. Baring Brothers, 8, Bishopsgate, London, E.C.

RIVER TRIPS FOR WOUNDED SOLDIERS.—By the kindness of the Port of London Authority towards the end of June a steamer on the Thames was placed at the disposal of the British Red Cross Society for the purpose of taking wounded soldiers from London hospitals for trips on the river. The Port of London Authority provides a good tea, consisting of bread-and-butter and cake, and also cigarettes for their guests, and the Red Cross Society arranges the dates of the trips and other details with the various hospitals, and in some cases provides the transport. The Red Cross Society sends a representative on all the trips to look after the comfort of the men and to see that the arrangements are carried out properly. The steamer runs every day of the week except Saturday and Sunday, and the number of men taken averages about 50 each trip. She leaves Temple Pier, Greenwich Pier, and Blackwall Pier according to the tide, and goes down as far as Erith from Temple and Tilbury from Greenwich and Blackwall, and arrives back at the various piers at 6 o'clock. She has now made 26 trips and carried 1238 men. The enthusiastic voluntary worker in charge of the organisation says: "The men all seem to like the trips, and by every hospital that we have taken we are told how much good the trips do the men. Of course, we are not able to take any men who cannot walk or hobble on crutches sufficiently to get on board. In cases where men's legs would suffer from the steep incline going down to the boat we can carry them, but unless a man can sit up on board with comfort we do not consider it advisable to take him."

AN AMBULANCE TRAIN.—The Great Eastern Railway Company had a hospital train of 16 cars on view at Liverpool-street Station last week. The train accommodates 162 recumbent and 280 seated cases, some of the cars being capable of being converted for either lying or seated accommodation as required. There were separate ward cars for infectious cases, and, generally speaking, the train seemed thoroughly well-planned and well-found.

MILITARY MEDICAL NECESSITIES OF SWEDEN.—A Reuter's telegram states that an application from the Austrian Government to the Malmö Hospital, Sweden, for six doctors and 48 nurses for service at Munkács, Hungary, was declined because not a single doctor or nurse could be spared as Sweden might need them any day for her own army.

THE "STAR AND GARTER" HOTEL, RICHMOND.—It is understood that the famous "Star and Garter" Hotel, Richmond, has been bought at a cost of approximately £25,000 by the Auctioneers' and Estate Agents' Institute of the United Kingdom, whose members intend to present the building to the Queen as a hospital for permanently disabled soldiers. It will accommodate about 200.

NOT a few medical men held combatant commissions in the Territorial Force on the outbreak of war, and have gone to the front in a combatant capacity. Major R. Craig Rodgers, commanding 5th East Lancashire Regiment (T.F.) at the Dardanelles, who has been invalided home, is an M.R.C.S. and L.R.C.P. Lond., and was in practice until the war at Burnley.

WE are glad to note among the names of the four officers saved from the *Lynx*, which was sunk by a mine on August 9th, that of Surgeon-Probationer R. P. Langford-Jones.

THE Australian Hospital at Auteuil, whose staff consists entirely of women, has been accorded military standing by the French Government, the rank of Médecin-Major being conferred on its director, Dr. Helen Sexton.

IT has been officially stated that there were 629 cases of Asiatic cholera in Austria on August 1st.

Obituary.

CHARLES HOLMES, F.R.C.S. ENG.

Mr. Charles Holmes, whose death at the age of 99 is announced, was born in 1816. When 14 years of age he was apprenticed to Dr. John Turner, of High Wycombe, Bucks, and in a few years entered St. Bartholomew's Hospital. At the age of 21 he obtained the double qualifications of M.R.C.S. Eng. and L.R.C.P. Lond. He then became assistant to Dr. Symonds, of Oxford, and remained with him some five or six years, when he entered into private practice on his own responsibilities. He first settled at Chipping Norton, in Oxfordshire, but soon removed to Slough, Bucks, where he practised successfully for many years. His health not being satisfactory, in 1875 he gave up most of his work and went to live at Blockley and Emsworth, two small country villages where he gave his services occasionally. Mr. Holmes was among the first to receive the honorary Fellowship of the Royal College of Surgeons of England.

Medical News.

UNIVERSITY OF OXFORD.—The following candidates have satisfied the examiners for the Diploma in Ophthalmology:—

Herbert A. Bodkin and Jehangir M. Talati.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination of the Conjoint Board held from July 6th to 27th the following candidates were approved in the undermentioned subjects:—

Medicine.—A. Z. Abushady, Cairo and St. George's; J. G. Ackland, St. Bartholomew's; J. K. Adhya, Calcutta and Middlesex; C. G. Ainsworth, Cambridge and London; D. R. Alexander, St. Mary's; J. S. Alexander, University College; H. K. Alton, Calcutta and Royal Free; E. H. R. Altounyan and P. W. L. Andrew, Middlesex; G. A. Back and B. F. Bailey, St. Thomas's; R. T. Bailey, Charing Cross; G. C. G. Baldini, St. Bartholomew's; O. Barkau, Oxford and St. Mary's; E. G. Barker, St. Mary's; E. B. Barnes, St. Bartholomew's; J. V. Bates, Cambridge and University College; K. L. Bates, Guy's; G. C. Berg, St. Thomas's; J. J. O. Beven, Cambridge and Middlesex; K. S. Bhat, Madras and St. Bartholomew's; S. L. Bhatia, Cambridge and St. Thomas's; E. Biddle, Cardiff and Guy's; J. A. Binning, University College; D. A. Blount, St. Bartholomew's; A. L. Bodley, Cambridge and University College; M. S. G. Bott, Royal Free; C. C. Brewis, Cambridge and London; J. Brooks, Manchester; W. H. Butcher, Oxford and St. Bartholomew's; C. H. C. Byrne, St. Thomas's; J. B. Cavenagh, Oxford and St. Thomas's; L. A. Celestin, University College; F. W. Chamberlain, Middlesex; V. M. Coates, Cambridge and Bristol; H. M. Cohen, Baltimore and Manchester; R. C. Cooke, St. Thomas's; S. J. Cowell, Cambridge and University College; H. McW. Daniel, Dublin; P. A. Dargan, St. George's; W. J. Dearden, Manchester; D. H. Derry and E. G. Dingley, St. Bartholomew's; G. M. Dominick, Madras; L. M. Donovan, Birmingham; R. O. Eades, University College; C. Y. Eccles, St. Thomas's; S. E. Y. Elliott, St. Mary's; H. H. L. Ellison, St. Bartholomew's; M. Farag, Cairo and University College; V. Feldman and R. K. Ford, London; E. Forrester-Paton, Cambridge and London; C. I. Fox, Royal Free; C. Gardiner-Hill, Cambridge and St. Thomas's; G. R. Gokharkar, Bombay and Guy's; C. H. Gow, St. Bartholomew's; G. D. Gripper, Guy's; H. W. Hales, Cambridge and St. Bartholomew's; C. C. Harrison, Cambridge and St. Mary's; Constance Hart, Pennsylvania and Royal Free; G. O. Hempson, University College; N. H. Hill, St. Bartholomew's; H. L. G. Hughes, University College; H. R. W. Husbands, Bristol; L. G. C. Itriago, Caracas and St. Bartholomew's; L. G. Jacob, Cambridge and London; L. P. Johns, King's College; J. P. Jones, Guy's; C. S. J. Kearney, St. Bartholomew's; F. A. Knott, Guy's; W. N. Leak, Cambridge and St. George's; J. B. Leather, Cambridge and Birmingham; S. J. L. Lindeman and G. C. Linder, St. Bartholomew's; V. E. Lloyd, Guy's; W. H. Lloyd, Middlesex; S. D. Lodge, Leeds; S. A. S. Malkin, University College; F. K. Marriott, London; G. S. Marshall, Charing Cross; A. D. Marston, Guy's; A. M. Matland, Royal Free; C. H. Medlock, Guy's; S. G. Moftah, Cairo and London; F. Molina, St. Thomas's; R. G. Morgan, St. Bartholomew's; A. H. Morley, London; J. K. Muir, Middlesex; V. Newmarch, Royal Free; H. M. Oddy, Oxford and St. Thomas's; B. C. W. Pasco, University College; J. F. M. Payne, London; V. Philippe, Brussels; L. G. Phillips, Middlesex; A. C. Pickett and F. Porter-Smith, St. Thomas's; S. R. Prall, Cambridge and St. Bartholomew's; T. L. Price, Oxford and St. Thomas's; E. A. Prichard-Evans, Cardiff and Middlesex; K. N. Purkis, Guy's; H. M. Quackenbos, Jefferson; G. J. Randell

Cardiff and Westminster; R. M. Riggall, Manchester; L. C. S. Roche, St. Thomas's; R. J. Scarr, Manchester; C. G. Schurr, Cambridge and University College; C. P. Sells, Oxford and Middlesex; E. W. L. Sharp, Cambridge and London; J. B. G. Skelton, London; G. E. Spicer, Cambridge and London; R. Stowers, University College; F. R. Sturridge, Middlesex; T. C. Summers, London; H. J. H. Symons, King's College; R. R. Sy Quia, London; E. C. Tamplin and W. Thomas, St. Thomas's; W. L. Thomas, Middlesex; N. S. Tirard, Cambridge and King's College; R. S. Topham, Leeds; G. M. Vevers, St. Thomas's; C. P. G. Wakeley, King's College; H. J. Wallace, Royal Free; M. J. T. Wallis, Guy's; A. H. Warde, St. Thomas's; W. T. Warwick, Cambridge and Middlesex; Arthur Alward Watkinson, Charing Cross; J. W. Wayte, St. Thomas's; F. L. Webster, Manchester; P. H. Wells and W. R. White-Cooper, St. Bartholomew's; B. Whitehead, Cambridge and St. Bartholomew's; H. Whyte, London; G. L. Wilkinson, Birmingham; A. Willatt, London; H. Williamson, Durham and Charing Cross; and G. C. N. Younger, Middlesex.

Surgery.—J. G. Ackland, St. Bartholomew's; J. S. Alexander, University College; E. H. R. Altounyan, Cambridge and Middlesex; J. Andrew, St. Bartholomew's; T. Anwyl-Davies and B. F. Bailey, St. Thomas's; G. C. G. Baldini and E. B. Barnes, St. Bartholomew's; J. V. Bates, University College; C. W. W. Baxter, Guy's; G. C. Berg, St. Thomas's; J. J. O. Beven, Cambridge and Middlesex; C. F. Beyers, St. Bartholomew's; K. S. Bhat, Madras and St. Bartholomew's; E. Biddle, Guy's; J. A. Binning, University College; B. Bishara, St. Mary's; S. C. Biswas, Calcutta and St. Mary's; D. A. Blount and C. V. Boland, St. Bartholomew's; E. W. Bowell, Guy's; H. F. Brice-Smith, Cambridge and Middlesex; W. H. Butcher, St. Bartholomew's; F. V. Cant, Cambridge and Manchester; L. A. Celestin, University College; J. E. Clark, Guy's; S. J. Cowell, University College; H. McW. Daniel, Dublin; R. M. Dannatt, St. Bartholomew's; W. J. Dearden, Manchester; D. H. Derry, St. Bartholomew's; D. M. Dickson, St. Thomas's; E. G. Dingley, St. Bartholomew's; R. O. Eades, University College; A. F. El-Hakim, Cairo and London; S. E. Y. Elliott, St. Mary's; H. Ellis, St. George's; D. T. Evans, Cardiff and University College; R. C. Fairbairn, St. Bartholomew's; R. K. Ford, London; C. Gardiner-Hill, Cambridge and St. Thomas's; P. C. Gibson, London; O. Gleeson, Westminster; C. H. Gow and A. P. Green, St. Bartholomew's; J. A. C. Greene and A. F. G. Guinness, Guy's; G. H. Haines, University College; H. W. Hales, St. Bartholomew's; C. Hart, Pennsylvania and Royal Free; N. H. Hill, St. Bartholomew's; R. W. Hodgson-Jones, Manchester; G. W. Huggins, Toulouse and London; H. L. G. Hughes, University College; S. C. W. Iredale and S. W. Isaacs, St. Bartholomew's; L. G. C. Itriago, Caracas and St. Bartholomew's; B. B. Jareja, Cambridge and St. Thomas's; F. N. Jayewardene, Ceylon and Middlesex; H. C. Jennings, St. Thomas's; I. Keess, Royal Free; F. A. Knott, Guy's; R. D. Langdale-Kelham, University College; M. E. A. Latif, Cairo and Middlesex; W. N. Leak, St. George's; C. G. Learoyd, St. Thomas's; P. K. Liang, Cambridge and London; G. C. Linder, St. Bartholomew's; E. D. Lindow, King's College; V. E. Lloyd, Guy's; W. H. Lloyd, Middlesex; S. D. Lodge, Leeds; G. S. B. Long, Guy's; H. G. Ludolf, Leeds; W. G. McKenzie, Bristol; J. E. C. Maguire, St. Bartholomew's; L. A. Malik, St. Mary's; S. A. S. Malkin, University College; G. S. Marshall, Charing Cross; A. D. Marston, Guy's; F. W. Maunsell, St. Mary's; T. W. Melhuish, Middlesex; R. G. Michelmore, London; F. Molina, St. Thomas's; R. G. Morgan, St. Bartholomew's; E. H. Morris, Charing Cross; I. Mortada, Cambridge and University College; N. R. Nalliah, Ceylon and London; W. G. S. Neely, Guy's; N. S. Paruck, Bombay and Middlesex; B. C. W. Pasco, University College; L. G. Phillips, Middlesex; W. H. Pickup, London; A. E. A. Poulier, Ceylon and Middlesex; R. A. W. Procter, St. Thomas's; A. L. Punch and K. N. Purkis, Guy's; G. J. Randell, Westminster; H. E. Robinson, St. Bartholomew's; E. S. Rowbotham, Charing Cross; R. J. Scarr, Manchester; C. G. Schurr, University College; E. A. Scott, University College; N. A. Scott, St. Bartholomew's; J. M. Shah, Bombay and St. Bartholomew's; E. W. L. Sharp, Cambridge and London; T. W. Sheldon, Cambridge and Guy's; S. A. Sittampalam, Ceylon; J. B. G. Skelton, London; G. E. Spicer, Cambridge and London; R. Stowers, University College; F. R. Sturridge, Middlesex; T. C. Summers and R. R. Sy Quia, London; J. W. T. Thomas, Middlesex; W. Thomas, St. Thomas's; L. H. D. Thornton, Middlesex; E. Underhill, Birmingham; G. M. Vevers, St. Thomas's; H. Vickers, St. Mary's; W. T. Warwick, Middlesex; T. T. B. Watson, London; P. H. Wells and W. R. White-Cooper, St. Bartholomew's; N. J. Wigram, Sheffield; A. Willatt, London; H. Williamson, Durham and Charing Cross; and W. R. Wilson, St. Bartholomew's.

Midwifery.—J. G. Ackland, St. Bartholomew's; A. W. Adams, Bristol; C. G. Ainsworth, Cambridge and London; M. C. Albuquerque, Agra and Royal Free; P. A. Ashcroft, Manchester; K. Atkin, Cambridge and Manchester; O. Barkau, Oxford and St. Mary's; E. B. Barnes, St. Bartholomew's; A. W. C. Bennett, St. Thomas's; C. F. Beyers, St. Bartholomew's; S. L. Bhatia, Cambridge and St. Thomas's; B. Bishara, Cairo and St. Mary's; A. L. Bodley, Cambridge and University College; E. S. Bowes, Guy's; G. K. Bowes, Oxford and St. Bartholomew's; J. P. Bracken, University College; C. C. Brewis, Cambridge and London; A. D. Brooks, Royal Free; W. H. Butcher, Oxford and St. Bartholomew's; C. H. C. Byrne, St. Thomas's; J. B. Cavenagh, Oxford and St. Thomas's; R. C. Cooke, St. Thomas's; S. A. Cornelius and R. G. Dani, University College; H. McW. Daniel, Dublin; L. M. Davies, Oxford and St. Thomas's; L. ap I. Davies, University College; B. G. Derry, Bristol; D. H. Derry, St. Bartholomew's; F. P. G. de Smidt, London; L. M. Donovan, Birmingham; H. M. Drake, St. Thomas's; D. J. Evans, Cardiff and Middlesex; M. D. Evans, London; M. Farag, Cairo and University College; W. Farquharson, St. Mary's; V. Feldman, London; C. I. Fox, Royal Free; L. Gameson, Oxford and London; H. Garas, Liverpool; J. Gasperine, Edinburgh and St. Bartholomew's; G. R. Gokharkar, Bombay and Guy's; C. C. Goodall, Cambridge and London; C. Gould, University College; C. H. Gow, Cambridge and St. Bartholomew's; T. H. Gunewardene, Ceylon and King's College; G. E. Heath, St. Bartholomew's; G. L. Hempson, University College; C. E. Hopwood, Manchester; E. G. Howell, Cardiff and St. Thomas's; P. Hudson, University College; G. G. Jack, Middlesex; T. H. Jackson, Charing Cross; F. B. Jago; Manchester; F. N. Jayewardine, Ceylon and Middlesex; J. R. John, Cardiff and Charing Cross; W. G. Johnston, St. Mary's; J. G. Jones, Guy's; L. W. Jones, Cambridge and London; V. Kameneff, Moscow and University College; J. D. Kenyon, Manchester; P. R. E. Kirby, University College; Y. Krupenia, Halle and King's College; W. N. Leak, St. George's; A. A. Lees, Cambridge and Birmingham; K. T. Limbery, St. Thomas's; L. M. Lister, Bristol; G. A. S. Madgwick, London; S. S. Malkani, Bombay and University College; A. D. Marston, Guy's; G. C. Mathie, Birmingham; G. L. Maule, Cambridge and Manchester; W. G. May, London; P. G. McEvedy, Guy's; J. B. McFarland, St. Bartholomew's; C. H. Medlock, Guy's; A. D. Millington, Birmingham; R. G. Morgan, St. Bartholomew's; B. Mountain, Cambridge and University College; V. Newmarch, Royal Free; W. Oats, Cambridge and St. Thomas's; M. Olivera, Bombay and Royal Free; L. F. Pain, Royal Free; P. E. D. Pank, Cambridge and London; W. L. Partridge, Guy's; B. C. W. Pasco, University College; J. W. G. Phillips, St. Mary's; F. Porter-Smith, St Thomas's; R. R. Powell and S. R. Prall, Cambridge and St. Bartholomew's; D. Rees, Cardiff and University College; G. C. Robinson, St. Thomas's; P. G. Russell, Middlesex; B. Sahai, Calcutta and Charing Cross; C. G. Schurr, Cambridge and University College; C. P. Sells, Oxford and Middlesex; E. A. Shaw, Royal Free; D. Stewart, Manchester; G. T. Symons, King's College; E. C. Tamplin, St. Thomas's; A. P. Thomson, Birmingham; J. A. Tippet, St. Thomas's; H. C. C. Veitch, University College; F. H. Vey, Cambridge and St. Thomas's; T. T. B. Watson, Cambridge and London; B. Whitehead, Cambridge and St. Bartholomew's; J. de S. Wijeyeratne, University College; R. W. Willenberg, Ceylon and Middlesex; H. Williamson, Durham and Charing Cross; T. Wilson, Manchester; and W. R. Wilson, Cambridge and St. Bartholomew's.

UNIVERSITY OF LONDON.—At the First Examination for Medical Degrees, held recently, the following candidates were successful:—

Francis Philip Adams, Epsom College; George Thomas Allerton, St. Paul's School; Abbas Yousef Amer, King's College; Kathleen Ardell, London (Royal Free Hospital) School of Medicine for Women; Marjorie Back, Newnham College; Andrew Edwin Beith, University College, Cardiff; Dorothy Bellows, London (Royal Free Hospital) School of Medicine for Women; William Claude Morpott Berridge, St. Thomas's Hospital; Norrys Aubrey Best, King Edward's School, Birmingham, and private tuition; Charles Glynne Bowen, University College, Bangor; John Vernon Cannadine Braithwaite, Guy's Hospital; Ella Marianne Britten, Newnham College; William Mark Brown, Guy's Hospital; Carl Henderson Bulcock, University Tutorial College; Michael Waldo Boone Bulman, London Hospital and South-Western Polytechnic Institute; Thomas Harold Burlend, B.Sc., private study; Leslie Burvill-Holmes, Guy's Hospital; Ernest Edwin Carter, City of London School; Joan Katherine Somerville Cave and Alix Jeanne Churchill, London (Royal Free Hospital) School of Medicine for Women; Kathleen Mary Cogan, Newnham College; Harris Cohen, University College, Cardiff; Hyman Solomon Cohen, London Hospital; Morris Cohen, Guy's Hospital; Simeon Moses Cohen, University College, Cardiff; Florence Edith Coombes, London (Royal Free Hospital) School of Medicine for Women; Daryll Cedric Corry, Epsom College; Philippe Couacaud, Guy's Hospital; Evan Walis Puw Davies, University College, Cardiff; Geraint Davies, Guy's Hospital; Sarah Helen Davies, University College, Bangor; Alfred Henry Gerald Down, University College, Exeter; Thomas Annesley Eccles, St. Bartholomew's Hospital; James Fanning, London Hospital; James O'Farrell Fletcher, St. Mary's Hospital; Raymond Eustace Ford, University of Sheffield; Edward Cyril Henry Foreman, University College; Reginald Stafford Foss, St. Thomas's Hospital; Pinkus Joseph Freilich, King's College; Edward Gallop, St. Bartholomew's Hospital; Dennis Herbert Geffen, University College; *Arthur William Grace, St. Thomas's Hospital; Edward Emile Delisle Gray, Guy's Hospital; Robert Handley Greaves, University of Sheffield; Gerald Henry Greenfield, Oundle School; Hilda Treloggen Haggett, Edith May Hall, Margaret Hammond, M.A., Joan Margaret Redford Harris, and Eleanor Harse, London (Royal Free Hospital) School of Medicine for Women; Martin Curgenven Hartley, London Hospital; Edward Anthony Francis Hawke, Dulwich College; Henry Lewis Heimann, Guy's Hospital; George Thompson Henderson, Dulwich College; Kenneth Edwin Alfred Hughes, St. Thomas's Hospital; Gilbert Rashleigh Hull, City of London School and South-Western Polytechnic Institute; Graydon Hume, Guy's Hospital; Bryan Leslie Jeaffreson, St. Bartholomew's Hospital; Arthur Edgar Jenkins, Pontypridd Intermediate School; William David Jenkins, Middlesex Hospital; John Douglas Johnstone, St. Paul's School; Herbert Martin Royds Jones and Lawrence Arthur Joscelyne, Epsom College; Muriel Mercer Kemworthy, London (Royal Free Hospital) School of Medicine for Women; †Allan Neave Kingsbury, B.Sc., Middlesex Hospital; Morris Korn, Birkbeck College and Whitechapel Foundation School; Henry Dillon Lawson, London Hospital; †Reginald Cyril Bell Ledlie, Guy's Hospital; John Neil Leitch, St. Bartholomew's Hospital; †Horace Sharman Le Marquand, St. Thomas's Hospital; Henri Toussaint Le Vieux Guy's Hospital; Gdal Leizer Levin, King's College; Hyman Jacob Levy, University College, Cardiff; William Ernest Lloyd, Swansea Technical College; John Thomas Long, St. Bartholomew's Hospital; Albert Ernest Lorenzen, City of London School; Leslie Lyne, Guy's Hospital; Gwendolen Winifred Tryner Lynn, London (Royal Free Hospital) School of Medicine for Women; Syed Francis Mahmood, University Tutorial College; Charles Dundas Maitland, St. Thomas's Hospital; Ida Caroline Mann, London (Royal Free Hospital) School of Medicine for Women; Aziz Abd El Sayed Mansour, King's College; Norah Elizabeth Marsden, University College, Nottingham; Grant Massie, Guy's Hospital; Kathleen Harding Matthews, London (Royal Free Hospital) School of Medicine for Women; Geoffrey Owen Montgomery, University College; Richard Maurice Hoyle Newbery, Bristol Grammar School; Thomas Stanley North, Epsom College; Cecil Wilfrid Odam and Thomas Charles Oliver, London Hospital; Sybil Gertrude Overton, London (Royal Free Hospital) School o Medicine for Women; Jal Pesonji Padshah, University College; †Dorothy Pantin, London (Royal Free Hospital) School of Medicine

for Women; George William Chorley Parker, Christ College, Brecon, and University College, Cardiff; Wilfrid Walter Payne, Guy's Hospital; Alan Christopher Temple Perkins, Westminster School and University Tutorial College; Norman Augustus Marais Petersen, London Hospital; Reginald Ernest Pleasance, University of Sheffield; Olive Gwendoline Potter, Croydon High School; Cyril Seymour Coode Prance, St. Bartholomew's Hospital; Cyril Mayberry Probert, University College, Cardiff; Beatrice Davidine Pullinger and Eleanor Margaret Reece, London (Royal Free Hospital) School of Medicine for Women; Ernest Llewellyn Rees, University College, Cardiff; William Remington, Guy's Hospital; Rowan William Revell, University College; William Arthur Richards, University College, Cardiff; *Edward Henry Roche, Guy's Hospital; Bernard Wilson Roffey, Epsom College; Samuel Rosenschein, Guy's Hospital; Joan Margaret Ross, private study; Charles Herbert St. John, Guy's Hospital; Samuel Sandler, London Hospital; Jivankumar Sanyal, Agra College, Bengal Medical College, and London Hospital; Arthur Brian Saunders, University College; Ruth Mary Scutt, London (Royal Free Hospital) School of Medicine for Women; Adolph Sebba and Ernest Livingstone Sergeant, London Hospital; Olive Ballance Sharp, London (Royal Free Hospital) School of Medicine for Women; *Campbell Shaw, St. Bartholomew's Hospital; George Drury Shaw, Guy's Hospital; Katherine Jane Shaw, London (Royal Free Hospital) School of Medicine for Women; Aly Ahmed Shukry, University College; James Victor Alexander Simpson, Middlesex Hospital; Gerald Maurice Joseph Slot, St. Paul's School; *Ernest Flavel Smith, City of London School and Birkbeck College; Herbert William Southgate and ‡Walter Roworth Spurrell, Guy's Hospital; Douglas Spurway, St. Bartholomew's Hospital; John Brewer Stacey, Guy's Hospital; Ernest Reginald Stearn and Ralph Stanley Swindell, Epsom College; Richard Norman Legge Symes, St. Thomas's Hospital; Beriah Melbourne Gwynne Thomas, University College, Cardiff; Eric Waldo Caryl Thomas, University College, Bangor; Vanda Patten Thomas, Ladies' College, Cheltenham; Annie Gladys Thompson, University College, Nottingham; ‡Kathleen Mary Tilliyard, Newnham College; Ruth Catherine Townshend, London (Royal Free Hospital) School of Medicine for Women; Jean Verbrugge, St. Bartholomew's Hospital; Noel Sydney Bailey Vinter and *Arthur Hedley Clarence Visick, Epsom College; Alfred Basil Keith Watkins, Birkbeck College; Evelyn Cecil Whitehall-Cooke, St. Thomas's Hospital; Anna Braithwaite Whitney, London (Royal Free Hospital) School of Medicine for Women; Kathleen Mary Wilkinson, University of Birmingham; David Hardy Williams, London Hospital; Lucy Wills and Grace Elizabeth Winn, London (Royal Free Hospital) School of Medicine for Women; Julius Maurice Winnett, London Hospital; Jane Edith Wood, Cardiff Technical School and University Tutorial College; and Arthur Dickson Wright and Edward Taylor Wright, St. Mary's Hospital.

* Awarded a mark of distinction in Inorganic Chemistry.
† Awarded a mark of distinction in Physics.
‡ Awarded a mark of distinction in Biology.

At the Second Examination for Medical Degrees (Part I.) the following were successful:—

Gerald Victor Wright Anderson, University College; Wilfred Mark Anthony, St. Thomas's Hospital; Maurice Aronsohn, London Hospital; Henry Spencer Bell, St. Bartholomew's Hospital; Julia Bell and Enid Margaret Mary Bevan, London (Royal Free Hospital) School of Medicine for Women; Thomas George Doughty Bonar and Jean Auguste André Bouic, Guy's Hospital; Hilda Crichton Bowser, University College, Nottingham; Sarah Aileen Florence Boyd-Mackay, London (Royal Free Hospital) School of Medicine for Women; Norman Carwardine Cooper, University of Bristol; Ursula Beatrice Cox, London (Royal Free Hospital) School of Medicine for Women; José Joaquim da Gama Machado, St. Bartholomew's Hospital; Edith Margery Pearce Davies, London (Royal Free Hospital) School of Medicine for Women; Thomas Davies, B.Sc., University College, Cardiff; John Joseph Philip de Chaumont, King's College; Jacob Franks, London Hospital; Mendel Gourevitch, King's College; St. George Bernard Delisle Gray, Guy's Hospital; Magdalena Augusta Hilda Hamel and Margaret Hammond, M.A., London (Royal Free Hospital) School of Medicine for Women; Lawrence Handy, St. Bartholomew's Hospital; Oscar Stanley Hillman, University College, Nottingham; Clifford Venning Isard, St. Thomas's Hospital; Herbert Vivian Jackson, University of Bristol; *Jerusha Jacob Jhirad, London (Royal Free Hospital) School of Medicine for Women and Grant Medical College, Bombay; Ernest Francis Kerby, Guy's Hospital; Maurice Laurent, University College; Eugène Henri Leon Leclézio, Guy's Hospital; Baroness Teresa Jadwiga Lesser, London (Royal Free Hospital) School of Medicine for Women; Glyndwr Morison Lewis and Charles Arthur Lindup, University College; Douglas McClean, St. Thomas's Hospital; Templar Edward Malins, University College, Cardiff; John Clifford Rowland Morgan, University College, Cardiff, and private study; Robert Gordon Morrison, St. Thomas's Hospital; William Drew Nicol, St. Bartholomew's Hospital; Reginald Ernest Overton, University College; *Robert Hughes Parry, Middlesex Hospital; Gordon Frank Peters, Guy's Hospital; Benjamin Wynford Philipps, London Hospital; Percival George Quinton and Walter Ernest Karl Adolf Quitmann, University College; Arthur Hywel Richards, St. Mary's Hospital; Frank Paul Schofield, St. Bartholomew's Hospital; Adolph Sebba, London Hospital; Marguerite Garnett Sheldon, University of Liverpool; Satyavan Singh, University College; William Skelly, Guy's Hospital; Frances Minnie Spickett, London (Royal Free Hospital) School of Medicine for Women; Victor Alexander Trevor Spong, St. Bartholomew's Hospital; John Phillip Traylen, London Hospital; Eric Roland Webb, Guy's Hospital; Reginald Frank White, University of Bristol; and Julius Maurice Winnett, London Hospital.

* Awarded a mark of distinction.

ROYAL SANITARY INSTITUTE.—The provincial sessional meeting of the Royal Sanitary Institute will be held in the Permanent Art Gallery, Brighton, on Friday and Saturday, Sept. 3rd and 4th, at 10.30 A.M., when discussions will take place on Indian Sanitation, Camp Sanitation, Maternity and Child Welfare, and on the Final Report of the Royal Commission on Sewage Disposal. Sir Henry Tanner, C.B., I.S.O., chairman of the council of the institute, will preside, and the speakers include Dr. Louis C. Parkes, Colonel J. Lane Notter, R.A.M.C., Major S. P. James, I.M.S., Major C. C. Murison, I.M.S., Lieutenant-Colonel H. R. Kenwood, R.A.M.C., and Dr. Philip Boobbyer. The Mayor of Brighton, Alderman J. L. Otter, will receive the members of the institute at Brighton, and visits will be made to the Royal Pavilion Indian Hospital, the Kitchener Indian Hospital, Shoreham Camp, and the Brighton electricity works. Tickets for the admission of visitors may be obtained on application to Dr. Duncan Forbes, Town Hall, Brighton; and those wishing to be present at the reception must indicate their intention before August 16th, and state the visits they propose to make not later than August 31st.

THE EFFECT OF THE WAR ON SCHOOL-CHILDREN'S CONDITION.—In his report on the school medical service of Leicester Dr. A. Warner says that owing to the outbreak of war he expected to find during the last five months of the year a larger number of badly clad children than usual, but this had not proved to be the case. Indeed, there was a general consensus of opinion among the teachers, nurses, and attendance officers that the children had been better clad during this period than formerly. On inquiry from the children's mothers he found, broadly speaking, that they had had more money passing through their hands since the outbreak of war than in times of peace. Consequently, they had been able to obtain better clothing and food for their children than was customary at this time of the year. In some cases the money received as bounty was known to have been spent in buying entirely fresh clothes for the children.

DONATIONS AND BEQUESTS.—The late Mr. George Patrickson, of Scales, Lancashire, left by will £10,000 to the Cremation Society of England and £4000 to the Ulverston and District Cottage Hospital. The residue of his property, after other bequests, which will amount to over £100,000, is to be divided equally between St. George's Hospital and the Royal Free Hospital, London.—By the will of the late Mr. Joseph Skelton, of Birkdale, subject to certain life-interests, a sum of about £10,000, to be known as the "Skelton Bounty," is to be applied to hospitals at Bolton, Manchester, Southport, and Buxton, and Dr. Barnardo's Homes.—The late Mrs. E. H. Hawkes-Strugnell, of London, who left estate valued at £22,643, has bequeathed, after various bequests of a personal character, the remainder of her estate as to three-eighths of the residue to the South Devon and East Cornwall Hospital, one-sixteenth to the Plymouth Royal Eye Infirmary, and a similar amount to the Plymouth Public Dispensary.

DEATH OF A YARMOUTH PRACTITIONER.—Mr. James Ryley, M.D. Lond., M.R.C.S., a well-known member of the medical profession in Yarmouth, died at his residence in that town on July 24th, at the age of 63. He was honorary ophthalmic surgeon to the Great Yarmouth Hospital, medical officer to the East Anglian Institute for the Deaf and Blind, and president of the East Anglian Branch of the British Medical Association. He held the office of mayor in 1898–99.

BOOKS, ETC., RECEIVED.

HARRISON AND SONS, London.
The Biology and Treatment of Venereal Diseases and the Biology of Inflammation and its Relationship to Malignant Disease. By J. E. R. McDonagh, F.R.C.S., Surgeon to Out-patients, London Lock Hospital, &c. Price £1 5s.

HOUGHTON MIFFLIN COMPANY, New York and Boston.
The Elements of Military Hygiene. Especially Arranged for Officers and Men of the Line. New and revised edition. By P. M. Ashburn, Major, Medical Corps, U.S. Army.

MACMILLAN AND CO., LIMITED, London.
Lessons in Elementary Physiology. By Thomas H. Huxley, LL.D., F.R.S. Enlarged and revised. Price 4s. 6d.
Diseases of the Arteries, including Angina Pectoris. By Sir Clifford Allbutt, K.C.B., Regius Professor of Physic (Cambridge). 2 Vols. Price 30s. net.

PUTNAM, G. P., SONS, London and New York.
The Tuberculosis Nurse: Her Functions and her Qualifications. A Handbook for Practical Workers in the Tuberculosis Campaign. By Ellen N. La Motte, R.N., Graduate of Johns Hopkins Hospital. With an Introduction by Louis Hamman, M.D., Physician-in-Charge, Phipps Tuberculosis Dispensary, Johns Hopkins Hospital. Price $1.50 net.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, London.
Elementary Chemical Microscopy. By Emile Mounin Chamot, B.S., Ph.D. Price 12s. 6d. net.
Examination of Hydrocarbon Oils and of Saponifiable Fats and Waxes. By Professor Dr. D. Holde (Berlin). Authorised translation from fourth German edition by Edward Mueller, Ph.D. (Massachusetts Institute of Technology). Price 21s. net.
Overcrowding and Defective Housing in the Rural Districts. By Dr. Harvey B. Bashore (Pennsylvania Department of Health). Price 4s. 6d. net.

WRIGHT, JOHN, AND SONS, Bristol.
An Index of Prognosis and End-results of Treatment. By Various Writers. Edited by A. Rendle Short, M.D., B.S., B.Sc. Lond., F.R.C.S. Eng., Captain, R.A.M.C. Price 21s. net.

WYDANIE & CIE UZUPE LNIONE, Warsaw.
Epidemiologia i Profilaktyka Cholery. By Dr. Stanislaw Serkowski.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

HALPIN, C. J., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Rathgormuck District of the county of Waterford.

HINE, MONTAGUE L., M.D. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Royal Westminster Ophthalmic Hospital.

MOSELY, LEWIN L., L.D.S. Eng., has been appointed an Honorary Dental Surgeon to the Royal Hospital, Richmond, Surrey.

TRINDER, ALFRED PROBUS, L.R.C.P. Lond., M.R.C.S., has been appointed Acting Deputy Medical Officer for the Wadebridge (Cornwall) Urban District Council.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BIRMINGHAM EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer or Part-time Officers. Salary of Whole-time Officer at rate of £300 per annum, and of Part-time Officer pro rata.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Junior House Surgeon. Salary £100 per annum, with residence, board, &c.

BRADFORD ROYAL INFIRMARY.—House Physician, unmarried. Salary £150 per annum, with board, residence, and washing. Also Honorary Assistant Physicians.

BRISTOL GENERAL HOSPITAL.—House Physician for six months. Salary at rate of £150 per annum, with board, residence, &c.

BRISTOL ROYAL INFIRMARY.—Resident Obstetric and Ophthalmic House Surgeon for six months. Salary at rate of £120 per annum, with board, apartments, and laundry.

BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £135 per annum, with residence, board, and washing.

BURY INFIRMARY.—Senior House Surgeon. Salary £250 per annum, with board, residence, and washing.

BURY ST. EDMUNDS UNION.—Medical Officer for Saint James District. Salary £100 per annum and fees.

CHESTER COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, and washing.

CROYDON UNION INFIRMARY, UNION HOUSE, AND CHILDREN'S HOMES.—Assistant Medical Superintendent of the Infirmary and Assistant Medical Officer of the Union House and Children's Homes. Salary £225 per annum, with residential allowances.

DERBY MENTAL HOSPITAL.—Senior Assistant Medical Officer. Salary £260 per annum, with board, apartments, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £150 per annum, with board and laundry.

DONCASTER, ROYAL INFIRMARY AND DISPENSARY.—Resident House Surgeon. Salary £250 per annum, with board and lodging.

DORSET COUNTY COUNCIL EDUCATION COMMITTEE.—School Dentist. Salary £260 per annum.

FOLKESTONE, ROYAL VICTORIA HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.

FRODSHAM, LIVERPOOL SANATORIUM, Kingswood.—Temporary Resident Medical Officer. Salary £30 per month, with board and residence.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.

ITALIAN HOSPITAL, Queen-square, W.C.—House Surgeon for six months. Salary £80 per annum, with board and residence.

LANCASHIRE COUNTY COUNCIL, HIGH CARLEY SANATORIUM, near Ulverston.—Medical Superintendent. Salary £450 per annum, rising to £550, with board, apartments, and washing.

LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—Honorary Anæsthetist.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham Hill-road.—House Surgeon. Salary £120 per annum, with apartments and board.

NEWCASTLE-UPON-TYNE, UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Physiology. Salary £250 per annum.

NORTHAMPTON COUNTY BOROUGH.—Temporary Clinical Tuberculosis Officer. Salary £400 per annum.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary at rate of £250 per annum, with board, residence, and laundry.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—District Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician, also House Surgeon, for six months. Salary £100 per annum, with board, residence, and washing.

RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary £350 per annum, with travelling expenses.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, AND OTHER DISEASES OF THE RECTUM, City-road, E.C.—House Surgeon. Salary £150 per annum, with board, lodging, and washing.

ST. MARY'S HOSPITAL, Paddington, W.—Resident Medical Officer to the Inoculation Wards for six months. Salary at rate of £100 per annum, with board and lodging.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £75 per annum, with board, lodging, and washing.

SALISBURY GENERAL INFIRMARY—Assistant House Surgeon, unmarried. Salary £100 per annum, with apartments, board, lodging, and washing.

SHEFFIELD ROYAL INFIRMARY.—House Surgeon and Assistant House Physician. Salary £100 per annum, with board and residence.

SHEFFIELD UNIVERSITY.—Demonstrator in Pathology and Bacteriology. Also Demonstrator of Anatomy.

SHREWSBURY, ROYAL SALOP INFIRMARY.—House Physician. Salary at rate of £120 per annum, with board, residence, and laundry.

SUNDERLAND ROYAL INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and laundry.

SURREY EDUCATION COMMITTEE.—Temporary Female Assistant School Medical Officers.

WALSALL AND DISTRICT HOSPITAL.—Assistant House Surgeon and Anæsthetist. Salary £150 per annum, with board, residence, and laundry.

WEST HAM AND EASTERN GENERAL HOSPITAL.—Resident Medical Officer. Salary £160 per annum. Also House Physicians and House Surgeons. Salary £120 and £100 per annum respectively, with board, residence, and washing.

WEST HAM UNION INFIRMARY, Whipps Cross-road, Leytonstone, N.E.—Third Assistant Medical Officer. Also Female Fourth Assistant Resident Medical Officer. Salary of former £200 and of latter £180 per annum, with residential allowances.

WEST HAM UNION WORKHOUSE, Union-road, Leytonstone, N.E.—Female Resident Assistant Medical Officer. Salary £180 per annum, with residential allowances.

WESTMINSTER GENERAL DISPENSARY, 9, Gerrard-street, Soho.—Resident Medical Officer. Salary £120 per annum, with rooms, gas, coals, and attendance.

WEST RIDING COUNTY COUNCIL, MIDDLETON-IN-WHARFEDALE SANATORIUM.—Temporary Resident Medical Superintendent. Salary £400 per annum, with board.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £150 per annum, with board, apartments, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Ashton-under-Lyne, in the county of Lancashire; and at Saltash, in the county of Cornwall.

Births, Marriages, and Deaths.

BIRTHS.

BOND.—On August 3rd, at Warrington-crescent, W., the wife of Dr. C. Hubert Bond, Commissioner of the Board of Control, of a daughter.

CRICHTON MILLER.—On August 6th, at Bowden House, Harrow, the wife of H. Crichton Miller, M.D., of a son.

MACKAY.—On August 3rd, at Walker-street, Edinburgh, the wife of Lieutenant G. R. B. P. Mackay, R.A.M.C. (T.F.), of a daughter.

MAYOR.—On August 6th, at Strathclyde House, Hounslow, W., to Dr. and Mrs. G. A. Mayor, a daughter.

WHITE.—On August 7th, at Churchfield-road, Ealing, the wife of Captain R. Kuper White, R.A.M.C., of a daughter.

MARRIAGES.

DOYNE—GRIFFIN.—On August 3rd, at St. Saviour's, Upper Chelsea, Phillip Geoffrey Doyne, F.R.C.S., elder son of Robert W. Doyne, F.R.C.S., late of Cavendish-square, to Evelyn Ida, younger daughter of Harcourt Griffin, of Langfield, Bude.

GLOSTER—PEARSON.—On August 5th, at St. Anne's Church, Brighton, Major T. H. Gloster, I.M.S., to Mary Dorothy, only daughter of Professor and Mrs. C. Yelverton Pearson, of Sidney-place, Cork.

GREENFIELD—JAEGER.—On August 5th, at the Church of St. Martin's-in-the-Fields, by the Ven. W. Foxley Norris, M.A., Archdeacon of Halifax, Lieutenant J. Godwin Greenfield, R.A.M.C., second son of Emeritus Professor Greenfield, of Edinburgh University, to Florence Mary, elder daughter of Mr. and Mrs. J. S. Jaeger, of Barnsley, Yorkshire.

MADGE—BOSWELL.—On August 5th, at the Parish Church, Ashbourne, Quintus Madge, B.A., M.R.C.S., L.R.C.P., to Janet Margaret Mathieson, younger daughter of Alexander Boswell, M.D., and Mrs. Boswell, of Ashbourne, Derbyshire.

PASCALL—PEEL.—On August 7th, at Lancing Church, Donovan Blaise Pascall, Lieutenant, Royal Army Medical Corps, to Olive Gertrude, second daughter of the Rev. Edmund Peel, vicar of Lancing.

DEATHS.

HOLMES.—On August 6th, at 12, Longton-grove, Sydenham, Charles Holmes, F.R.C.S., aged 99 years.

SIMS.—On August 7th, at her residence, Bentinck-street, W., Mildred Sims, M.D., C.M.

WARREN.—On August 6th, in London, William Warren, physician and surgeon, of Dublin, late of Melbourne, Australia, aged 62 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

STUDENTS' NUMBER OF THE LANCET.

INFORMATION intended for the Students' Number of THE LANCET must be sent WITHOUT DELAY, addressed to the Sub-Editor, and marked on the envelope "Students' Number Only."

THE MILITARY CIGARETTE.

TEN years ago we reported that the natives of India had increased their smoking of cigarettes to an enormous extent, the export from the United Kingdom alone running into hundreds of millions of cigarettes annually, although the British introducer in his early days preferred his hand-made clay pipe to wrapping tobacco in little rolls of paper. Since then, however, the quality of the paper has greatly improved. Although in this country we are more familiar with the name of Raleigh as the introducer of tobacco-smoking, it is to a Spanish physician, by name Francisco Hernández of Toledo (also called Fernandez, Hermandes Toledo, and other variants), that the credit of introducing it into Europe in 1559 must be assigned. He had been sent by Philip II. of Spain to investigate the products of Mexico. Linnæus, however, gave tobacco the name of *Nicotiana tabacum*, after Jean Nicot, the French Ambassador, who introduced it into France in 1560, and presented the first specimen to the Queen of France, Catherine de Médicis, whence it was popularly called by some, out of compliment, "Herbe à la Reine," and by others "Herbe de l'Ambassadeur." In 1621, however, the French Government first imposed a tax on it under the name of "*Petun de tabac*" from the American-Indian "Petun" (tobacco), whence also the name of "Petunia" the well-known garden flower of the tobacco family. The French Government, and others, have cause to thank that early physician, for tobacco has been a source of enormous revenue to France, whose smokers spend over 500 millions of francs on it every year with a large profit to the Government. Although there are great quantities of cigars and cigarettes hand or machine made, there is a much larger quantity in the official returns which goes under the name of "Scaferlatis," which is really ordinary tobacco which may be used for either the pipe or for the cigarette by means of cigarette papers. The Régie looks after the matches also, as the French consume themselves annually over 43,000 millions of them besides those exported. Ten "Woodbines" at 2*d*. in England cost 4*d*. in France now, and the solace of a well-known "fag" costs Tommy dear. Moreover, the French Post Office has intimated that it is unable to effect the delivery of parcels containing tobacco, cigars, and cigarettes addressed to French troops because it is impossible to collect from the addressees the French Customs charges to which all such parcels are now liable. The Postmaster-General gives notice therefore that parcels containing such articles will not be accepted for transmission by post. There is another side to the cigarette smoking in the Army, however, as will be recalled by referring to our annotation on the subject in THE LANCET of Feb. 5th, 1910, showing the harm done amongst, chiefly, the young recruits who are often inveterate cigarette smokers, although the effect varies greatly in intensity in different individuals.

THE FLY PEST.

MANY of the health departments of municipal corporations are issuing leaflets and pamphlets calling attention to the dangers to health from allowing flies to breed among waste material. Dr. E. W. Hope, the medical officer of health of Liverpool, has written for his authority an excellent eight-page pamphlet on "Flies and their Dangers," which describes in a popular manner the habits of the fly, its food and manner of feeding, its breeding places, how it carries disease, and how to destroy the insect. The letter-press is accompanied by clear illustrations, and the pamphlet should certainly have the effect of bringing home to every inhabitant of Liverpool and every lay person who reads it the dangers which may follow if flies are not destroyed and their breeding prevented.

PERMANENT DISCOLOURATION OF THE SKIN.

A MEDICAL correspondent writes as follows from Selangor, Kuala Lumpur, Federated Malay States, under date July 1st, 1915:—"In THE LANCET of May 29th (p. 1164) a note appeared by 'C. W.,' on the above subject. I was very interested in the case as I have had a similar one, but in my case the dirty-brown patch preceded the eczema and rheumatic gout. My patient is a European, aged 48, and has been resident in the tropics for over 25 years. The brown patch is on the outer side of the left ankle and was first noticed by patient's wife in March, 1913. The patient himself did not know of the existence of the patch, as it is not visible to him except when especially looked for, owing to its situation on the outer ankle. Eczema occurred on the discoloured patch and spread round the limb as the result of treatment and irritation of scratching. The eczema was cured, but the patch of discolouration still persists. In June, 1913, and June, 1914, he had an attack of rheumatic gout in right ankle-joint. The patch is not thickened, not itchy, and has not increased in size. At times it is scaly. Examination of blood and serum from patch and nasal discharge for bacillus lepræ was negative. The patch is not raised and not anæsthetic. He had a course of lithia and colchicum and numerous and various local applications, with no effect."

HEALTH OF ST. HELENA.

Major H. E. S. Cordeaux, C.B., C.M.G., Governor of St. Helena, in his report on the colony for the year 1914, gives the estimated civil population as 3553. There were 100 births and 54 deaths, as compared with 101 and 51 respectively in 1913. The birth-rate was 27·3 per 1000 and the number of illegitimate births registered was 23. The death-rate works out at 14·6 per 1000—exceeding the rate of the previous year by 0·1 and being the highest for many years past. Ten infants died under 1 year of age and 19 adults over the age of 70, one of whom was over 90. No accidental deaths were recorded. The gradual rise in the death-rate which has been taking place during the past few years is mainly attributable to deaths from old age. During the year under review there were two severe epidemics—one of whooping-cough, and one of influenza, which was in numerous cases complicated by broncho-pneumonia, resulting in 7 deaths. In addition 2 deaths occurred from pulmonary tuberculosis and 4 from dysentery. The water-supply in many of the country districts is still very unsatisfactory, especially in the Half Tree Hollow district, where dysentery and acute diarrhœa have been particularly prevalent. Steps are being taken to improve the existing system of supplying water to this district.

There were 128 admissions to the hospital during the year and 9 deaths. A new operating room has been built. Several changes have occurred in the hospital staff. Miss Oxley replaced Miss Henderson, who had completed her three years' service in the colony. Miss Wagstaff replaced Miss Sherlock, who retired in October. In November the lady superintendent, Miss Hart, left the island on leave of absence necessitated by ill-health. In the same month Dr. W. J. Arnold, the colonial surgeon, having contracted influenza during the epidemic, was obliged to go on sick-leave. His place was temporarily taken by Major Foulds, R.A.M.C., until Dr. Draper arrived in December to take up his duties as assistant to the colonial surgeon.

The total rainfall at the Meteorological Station, Hutt's Gate, was 49·220 in., being an increase of 5·590 in. over that of the previous year and the heaviest experienced since 1906 when the fall was 49·770 in. The mean temperature was 61·7° as against 62·4° in the previous year. The absolute maximum recorded was 82° on March 22nd, and the absolute minimum 51° on July 31st.

THE NEW "BENEDICITE."

CHRISTIANITY, Buddhism, all the great religions inculcate the need for the teaching of love as opposed to hate, and it is significant that the replies which have been made to the silly poem known as the "Hymn of Hate" have not repeated the anti-Christian theme emanating from Germany. Mr. R. A. Kennedy has sent us a copy of what he calls the New "Benedicite," which has the same refrain as the beautiful song of praise which is part of the Morning Service in the English Prayer-book. Each of the nations, great and small, recorded in history are mentioned in turn, and both as a Christian reply to the un-Christian hymn and as a sort of pocket review of the races of mankind past and present, the pamphlet should receive a wide circulation. It can be obtained from Messrs. Charles Knight, Tooley-street, London, S.E., price 2*d*.

CANADIAN CHEMICAL INDUSTRIES.

THE Canadian statistics of manufactures for 1910, the latest available, show that there were 178 establishments for the manufacture of chemicals and allied products, with a capital of $26,926,124, and 5274 employees on wages, and that the value of the products was $27,798,833. Of these establishments there were 40 devoted to drugs, 7 to explosives, 10 to fertilizers, 29 to oils, 26 to paints and varnishes, 37 to patent medicines, 5 to salt, 11 to starch, and 13 to all other allied industries. The values of the products were as follows:—Drugs, $3,632,794; explosives, $2,168,500; fertilizers, $643,733; oils, $7,682,510; paints and varnishes, $8,041,154; patent medicines,

$3,214,939; [salt, $122,985; starch, $1,744,381; all other allied industries, $547,837. Four establishments for the manufacture of artificial limbs and trusses are included under "Timber and Lumber," and the employees numbered 33. There were 5 carbide of calcium establishments with 186 employees with a produce of $515,457. There were 22 soap establishments with 754 employees with a produce of $5,220,546, and 7 washing compound manufactories with 63 employees and a produce of $282,874. Under "Food Products," there were 8 chewing gum establishments with 203 employees producing $816,069, and under "Miscellaneous" 4 artificial ice manufacturers with 80 employees producing $170,226.

A USEFUL HOLIDAY GUIDE.

HOLIDAY guides will not be in demand this year, though everyone who can take a holiday should do so in the interests of his own health and of those who are dependent upon him. For those who intend visiting any of the districts supplied by the Great Central, the Great Western, the Great Eastern, the Great Northern, London and North-Western, and the Midland railway companies, *The Holidays, Where to Stay and What to See*, published by Messrs. Walter Hill, 67, Southampton-row, London, W.C., price 1s., should prove very useful. It is fully illustrated, there are excellent maps, and much of the information is in alphabetical order.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. Mr. B. Harman and Mr. Gibb: Diseases of the Eye.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women. Mr. Gibb: Diseases of the Eye.

THURSDAY.—9 A.M., Dr. Bernstein: Bacterial Therapy Department. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. D. Armour: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

For further particulars of the above Lectures, &c., see Advertisement Pages.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1915, which was completed with the issue of June 26th, were given in THE LANCET of July 3rd.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1915 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

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SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 9.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 11th, 1915.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 5	30·000	N.W.	...	125	69	54	55	61	Cloudy
,, 6	29·860	S.W.	0·04	119	73	61	62	64	Overcast
,, 7	30·090	W.	...	94	72	61	61	64	Cloudy
,, 8	30·050	W.	0·05	125	75	64	65	66	Cloudy
,, 9	30·030	W.	0·12	90	72	64	65	66	Raining
,, 10	29·994	W.	0·32	111	75	64	65	66	Overcast
,, 11	30·046	S.W.	...	128	76	62	61	65	Cloudy

The following magazines, journals, &c., have been received:—Journal of Laryngology, Rhinology, and Otology, British Journal of Children's Diseases, Annali di Medicina Navale e Coloniale, British Journal of Surgery, Revista Médica del Uruguay, Annals of Tropical Medicine and Parasitology, Public Health, American Journal of Medical Sciences, Medical Review, Dublin Journal of Medical Science, Edinburgh Medical Journal, British Dental Journal, Tidsskrift for den Norske Laegeforening, Canadian Journal of Surgery.

Communications, Letters, &c., have been received from—

A.—Mr. E. Weaver Adams, Lond.; "Another Consulting Surgeon"; Dr. W. D. Anderson, Keswick; Mr. F. Aldridge, Lond.; *Argus Suisse de la Presse*, Geneva; Lieutenant Anderson, R.A.M.C., France; Aberdeen University, Secretary of; Messrs. C. Ash, Sons, and Co., Lond.; Army Medical Service, Director-General; Mr. Charles Ashton, Harrogate; Ardath Tobacco Co., Lond.

B.—Dr. John Biernacki, Lond.; Dr. Byrom Bramwell, Edinburgh; Dr. Léon Blanc, Aix les-Bains; Board of Education, Lond., Secretary of; Lieutenant-Colonel H. Barrow, R.A.M.C., Lond.; Buchet and General Car Agency, Lond.; Belfast County Borough, Chief Tuberculosis Officer to the; Mr. L. Buck, Farnworth; Messrs. Butterworth and Co., Lond.; Dr. J. S. Boothroyd, Lond.; Messrs. Boulton and Paul, Norwich; Messrs. Burroughs Wellcome and Co., Lond.; British Drug Houses, Lond., Secretary of; Mr. C. Birchall, Liverpool; Birmingham and Midland Ear and Throat Hospital, Secretary of; Birmingham Education Committee, Secretary of; Dr. J. Brennan, Mountshannon; *Bury Free Press*, Bury St. Edmunds; Bexar County Medical Society, San Antonio, Secretary of; Lieutenant A. Barr, A.V.C., France; Bristol Royal Infirmary, Secretary of.

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E.—Lieutenant H. H. Elliot, R.A.M.C., France; E. H. Q.

F.—Dr. Paul Fildes, Lond.; Factories, Chief Inspector of, Lond.; Dr. E. Rowland Fothergill, Hove; Messrs. Fannin and Co., Dublin; Messrs. Ferris and Co., Bristol; *First Aid*, Lond., Editor of; Mr. W. E. Franklin, Newcastle-on-Tyne.

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J.—Mr. James W. Johnson, New York.

K.—King Albert's Civilian Hospital Fund, Lond.; Messrs. H. S. King and Co., Lond.

L.—Dr. R. T. Leiper, Lond.; Dr. C. E. Lea, Manchester; Leeds Education Department, Secretary of; Messrs. Lever Bros., Port Sunlight; Messrs. H. K. Lewis and Co., Lond.; Lieutenant C. S. Lee, R.A.M.C., St. Albans; Liverpool Eye and Ear Infirmary, Secretary of; Leeds Public Dispensary, Secretary of; Messrs. E. and S. Livingstone, Edinburgh; Local Government Board, Lond., Secretary of.

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